

MOTOR AGE

A CHILTON
PUBLICATION

MAY 1949



In This Issue:

1949 Indianapolis Preview



Here's an average car owner who needs new piston rings. BUT . . . he never thinks about new rings. He has a lot of other things on his mind.

SO

■ ■ ■ Hastings reminds him again and again and again that piston rings need replacing at the first sign of oil-pumping.

This consistent advertising in the leading national magazines sells preference for Hastings piston rings. But it also sells the idea of more frequent ring replacement . . . and that means more repair jobs for you.

**HASTINGS leadership
in advertising means
more business for you!**



If it's assembled with
Form-A-Gasket
it's
Leak-proof!



PERMATEX COMPANY INC., BROOKLYN 29, N.Y.



For Full Power-Install
MAREMONT MUFFLERS

All these Maremont
sure-to-sell merchan-
dising aids are FREE in
a complete package
for Maremont's Stock-
ing Franchise Dealers.



For full particulars see your nearest Maremont Wholesaler or write to the factory.

SINCE
1877

MAREMONT

MUFFLERS

ALSO MANUFACTURERS OF MAREMONT ALLOY STEEL SPRINGS

MAREMONT AUTOMOTIVE PRODUCTS, Inc.
1600 S. Ashland Ave., Chicago 8, Ill.
Factories at Chicago, Cicero and Harvey, Ill.

MOTOR AGE

WITH WHICH IS COMBINED AUTOMOBILE TRADE JOURNAL

Reg. U. S. Pat. Off.
for AUTOMOTIVE SERVICEMEN

Vol. LXVIII, No. 6

May, 1949

In This Issue . . .

Frank P. Tighe
Editor

Charles M. Kenyon
Managing Editor

J. K. Montgomery
Technical Editor

Arthur H. Nellen, Jr.
Assistant Editor

Howard Kohlbrenner
Art Director

Leonard Westrate
Detroit News Editor

Joseph Geschelin
Detroit Technical Editor

Marcus Ainsworth
Specifications Editor

E. J. Hardy
Washington Editor

R. Raymond Kay
Pacific Coast Editor

K. Rannells
Washington News Editor

G. H. Baker
Washington News Editor

| | | |
|--|--------------------------|-----|
| Dateline Detroit..... | by Leonard Westrate | 33 |
| Washington Wire..... | by E. J. Hardy | 35 |
| New Packard Features Torque Converter..... | | 36 |
| Facts vs. Expert Fancies..... | by Joseph Geschelin | 38 |
| Better Ring Jobs Pay Off..... | by Jack Montgomery | 40 |
| Pop Gets the Breaks..... | by Charles M. Kenyon | 42 |
| Previewing the 1949 Indianapolis Winners..... | by Frank Kurtis | 44 |
| Face-lifting for Furrowed Fenders..... | | 46 |
| Adjusting the Auto-Lite Voltage Regulator..... | by Arthur H. Nellen, Jr. | 48 |
| Cutting Your Overhead..... | by Arthur Roberts | 50 |
| Readers Clearing House..... | | 52 |
| Facing Your Way..... | | 55 |
| Newscene | | 56 |
| Beating Bombers Into Aluphones..... | by Harold Severson | 58 |
| New Products | | 60 |
| New Car Registrations..... | | 63 |
| Putting the Finger on Cracks..... | | 64 |
| Slip Covers, a Profitable Accessory..... | by Phil Lance | 65 |
| Flat Rate and Service Manual Department..... | by Andrew D. Grey | 66 |
| Service Suggestions from the Factories..... | | 68 |
| Shop Kinks | | 70 |
| Engine Specifications | | 154 |
| Advertisers Index | | 186 |

Copyright 1949 by Chilton Company (Inc.)

G. C. BUZBY, President and Manager Automotive Division
E. H. MILLER, Adv. Mgr. **E. W. HEVNER**, Cir. Mgr.

REGIONAL BUSINESS MANAGERS

HARLAND E. BOYD, Cleveland J. A. LAANSMA, Detroit
RUSSELL W. CASE, JR., Philadelphia A. T. ARNOLD, New York
CURTIS F. MOSS, Chicago C. H. WOOLLEY, San Francisco
H. M. WERTZ, Chicago AUGUST HAURIN, JR., Los Angeles

Offices: Philadelphia 39, Pa.—Chestnut & 56th Sts., Phone Granite 4-5600,
New York 17, N. Y.—100 E. 42nd St., Phone Murray Hill 5-8600, Chicago 1,
Ill.—Room #16 London Guarantees & Accident Bldg., Phone Franklin 2-4245,
Detroit 2, Mich.—1615 Stephenson Bldg., Phone Madison 2900, Cleveland 14,
Ohio—1930 Guardian Bldg., Phone Cherry 4188, Washington 4, D. C.—1001
National Press Bldg., Phone Sterling 1844, 1845, 1846, San Francisco 5, Cal.
—605 Market St., Room 608, Phone Sutter 1-4951, Los Angeles 1, Cal.—6000
Miramonte Blvd., Phone Lafayette 5525. Member of Audit Bureau of Circula-
tions. Member of Associated Business Papers, Inc. Subscription Price: United
States and Possessions, Latin-American Countries, \$3.00 per year; Canada
and foreign \$5.00 per year. Single copies, 40¢.

One of the Publications Owned by
CHILTON COMPANY (INC.)

Executive Offices
Chestnut and 56th Streets, Philadelphia 39, Pa., U.S.A.

Officers and Directors

Jos. S. HILDRETH, President

Vice-Presidents

EVERIT B. TERHUNE P. M. FAHRENDORF
THOMAS L. KANE G. C. BUZBY CHARLES J. HEALE
WILLIAM H. VALLAR, *Treasurer*
JOHN BLAIR MOFFETT, *Secretary*
HARRY V. DUFFY T. W. LIPPERT D. ALLYN GARBER
GEORGE MAISWINKLE, *Asst. Treas.*

PAUL WOOTON, *Washington Member of the Editorial Board*

MOTOR AGE, Vol. LXVIII, No. 6. Published monthly by Chilton Co., Chestnut & 56th Sts., Phila. 39, Pa. Entered as Second-Class Matter December 27, 1935,
at the Post Office at Philadelphia, Pa.; Under the Act of Congress of March 3, 1879. In case of Non-Delivery Return Postage Guaranteed. Subscription price:
United States, Mexico, United States Possessions, and all Latin-American countries \$3.00 per year. Canadian and foreign, \$5.00 per year; single copies, 40 cents.

**MORE
BRAKE SERVICE
PROFITS
FOR YOU!**

• **working for you**

A great year-round selling program in the *Saturday Evening Post*. Makes your customers brake-conscious!

• **a big summer drive**

A powerful drive for more brake service business continues throughout the year with half-page color advertising month after month in the *Saturday Evening Post*.

• **every day of the year**

Roll up more brake service profits with Raybestos! Here's all you do: See the Raybestos distributor today, become a Raybestos Contract Account, and participate in the Raybestos Brake Certificate Program.



**For summer driving...
have your brakes
certified "Safety-Sure"**

Summer driving means extra work for your brakes. And your safety depends on the way they perform in each application . . . from simple slow-downs to sudden, emergency stops. For dependable brake performance every mile of the way insist on genuine Raybestos; call on the Raybestos Brake Serviceman now, and have him inspect your brakes. He'll do whatever is necessary to make your brakes safe and sure, and in addition, he'll give you the Raybestos Brake Certificate, your assurance of dependable brake performance.

TWO SURE STEPS TO SAFETY



PULL A WHEEL . . . KNOW YOUR BRAKES

The Raybestos Brake Serviceman will pull a wheel and show you your brake lining. If you need relining, he will use genuine

GET THE RAYBESTOS BRAKE CERTIFICATE

When your brakes have been inspected, adjusted or relined you receive the Raybestos Brake Certificate. Keep it in your glove compartment as a record of brake condition. It shows you are certified "Safety-Sure."

Raybestos

**AMERICA'S BIGGEST SELLING
BRAKE LINING**

The Raybestos Division of RAYBESTOS-MANHATTAN, Inc., Bridgeport, Conn.



RAYBESTOS-MANHATTAN, INC., Manufacturers of Brake Linings • Brake Blocks • Clutch Facings • Radiator Hose • Fan Belts • Mechanical Rubber Products • Rubber Covered Equipment • Packings • Asbestos Textiles • Powdered Metal Products • Abrasive and Diamond Wheels • Bowling Balls



SIGNS OF SUCCESS

SPLASH!

Tossing the coxswain into the river after a winning race is the traditional sign of success in rowing. Dealers who display the big, red, white and green Wolf's Head sign have their sign of success also—for Wolf's Head means even more than the "finest of the fine" motor oil and lubes . . . it means more customers, satisfied customers—the sign of business success! Wolf's Head Oil Refining Co., Inc., Oil City, Pa., New York 10, N. Y.

Wolf's Head motor oil is refined three steps further than ordinary motor oils.

- 1 EXPERTLY CONTROLLED DEWAXING—Keeps Wolf's Head free-flowing and removes non-lubricating wax components.
- 2 DOUBLE DISTILLING—Makes Wolf's Head richer, more heat-resistant.
- 3 TRIPLE FILTERING—Removes all free carbon and other troublesome impurities.

WOLF'S HEAD

MOTOR OIL AND LUBES

100% Pure Pennsylvania
"Premium Grade"



P.G.C.O.A.
Permit No. 6

JUNK FUEL PUMPS WORTH REAL MONEY

AIRTEX EXCLUSIVE CORE CREDIT POLICY PROFITABLE TO EVERY DEALER!

Junk fuel pumps (old cores), now have a trade-in value against the purchase of NEW Airtex fuel pumps. Credit will be issued for junk pumps, against new Airtex fuel pump purchases, when turned in to your Airtex jobber.

Single type pump trade-in value is 25c each; dual type pump trade-in value is 50c each.

Any make, type or catalog number of fuel pump will be accepted for credit, regardless of condition. Any quantity will be accepted.

Junk pumps will be scrapped.

Current Airtex price schedules remain in effect. There is no change in Airtex new fuel pump prices when junk pumps are *not* turned in.

Buying new Airtex fuel pumps under this core credit plan will enable every dealer to offer an equivalent value to the consumer trade. It will pay the dealer to advertise a special offer on Airtex fuel pumps for the consumer, accepting his old pump in trade. This will increase dealer shop activity and dollar profit.

**For additional information, ask your
AIRTEX jobber, or write the factory . . .**

AIRTEX AUTOMOTIVE DIVISION
Chefford Master Mfg. Co., Inc.
FAIRFIELD, ILLINOIS
The World's Largest Independent Manufacturer of Fuel Pumps

Thus far, all bigots publicly admit a loss. Presumably there might be others. The police are investigating.

Mr. George was graduated from The University of Michigan with highest honors. She

Mr. and Mrs. David Fleischman were in their home, located about two

How to be your customers' fair-haired boy

YOUR customers will favor you over all the rest if you let them know that you are using the very best in replacement parts. The way to prove it is to point out the trade-mark "Timken"® whenever you install tapered roller bearings. Your customers know that Timken bearings are the finest replacement you can give them. So the best way to become the fair-haired boy is to . . .



... Just tell 'em it's "TIMKEN"®



Timken tapered roller bearings are first choice with leading automobile, bus, and truck manufacturers, because Timken bearings assure long, trouble-free service. Timken bearings take any combination of radial and thrust loads, eliminate friction, reduce wear, keep parts in rigid alignment. They normally outlast the vehicle itself!

The Timken Company makes its own alloy steel—the finest steel ever developed for tapered roller bearings—and controls quality rigidly all the way from the melting of the steel through final bearing inspection. No other bearing manufacturer takes such extreme care to insure uniform quality.

To protect your customers and keep them satisfied, make sure the name "Timken" is on every tapered roller bearing you install. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

TIMKEN
TRADE MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS

NOT JUST A BALL ○ NOT JUST A ROLLER ○ THE TIMKEN TAPERED ROLLER ○ BEARING TAKES RADIAL ○ AND THRUST --○-- LOADS OR ANY COMBINATION



STRONGER and STRONGER

GENUINE

LEAK-PROOF

REG. U. S. PAT. OFF.

PISTON RINGS

Guaranteed
TO DO ALL

4

- 1 Keep oil down
- 2 Keep power up
- 3 Give longer life
- 4 Give smooth,
new motor operation

Yes

GUARANTEED



...guaranteed to give satisfactory performance for 10,000 miles or one year, whichever shall occur first, under the McQuay-Norris LEAK-PROOF Piston Ring Replacement and Labor Guarantee available upon request.

BUILD A BIGGER, STRONGER BUSINESS WITH **LEAK-PROOF**

R and STRONGER



Yes

Every day, in shops all over the country, LEAK-PROOF Piston Rings are growing stronger and stronger in reputation for performance. They do the job right! Bring in new customers, more profits! . . . No other ring set is as aggressively advertised, year in and year out. No other ring set can match LEAK-PROOF's modern design or precision workmanship.

McQUAY-NORRIS MANUFACTURING COMPANY · ST. LOUIS 10, MO.

WAGNER LOCKHEED

LARGEST SELLING

Wagner Lockheed Hydraulic Brake Fluid
...nationally outsells competition.

MOST ADVERTISED

Wagner Lockheed . . . advertised more than any other brake fluid.

USED BY MANUFACTURERS

Wagner Lockheed . . . truck, bus and car manufacturers use it.

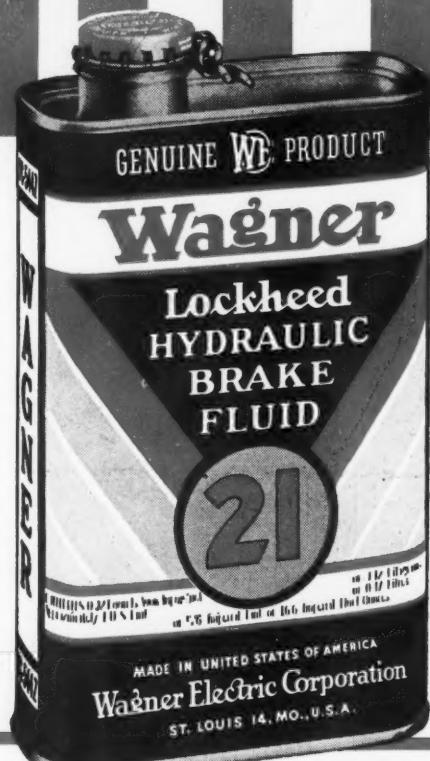
You can do more Brake Business with the 3R's...

- ★ **REFILL** with genuine Wagner Lockheed Brake Fluid
- ★ **RELINE** with Wagner CoMaX Brake Lining
- ★ **REPAIR** with genuine Wagner Lockheed Hydraulic Brake Parts

Ask for the new Brake Service Wall Poster—Form AU-354. Free on request.

Wagner Electric Corporation

6498 PLYMOUTH AVE., ST. LOUIS 14, MO., U.S.A.



YOU CAN DEPEND UPON WAGNER QUALITY BECAUSE . . . WAGNER PRODUCTS ARE USED AS ORIGINAL EQUIPMENT BY AUTOMOBILE MANUFACTURERS.



H49-13



*Why **MONKEY** around?
For top performance . . .*



*set the timing
to take full advantage . . .*



*of the high antiknock quality of
"ETHYL" Gasoline . . .*



*and keep customers happy
with you and your service.*

ETHYL CORPORATION, New York 17, N.Y.

Products sold under the "ETHYL" trade-mark — Antiknock Compound . . . Salt Cake . . . Ethylene Dichloride . . . Sodium Metallic . . . Chlorine (liquid) . . . Oil Soluble Dy-

"9t'se



The
Original Equipment
Line

"It's easier to sell"



R. E. ZERNEKE, Owner
West Side Battery & Electric
Wausau, Wisconsin



E. M. LEE
Northern Auto Supply Co.
Marshfield, Wisconsin

"Sta-ful has given my battery business a lot of new zip. Sta-ful makes friends, it brings a bigger profit on every sale and, believe it or not, it's easier to sell. They like the service Sta-ful gives them, that greater liquid protection and longer life. For me, the new Auto-Lite Sta-ful set-up is tops . . . it helps build volume and sell other things throughout my store.' This statement of Wausau, Wisconsin, dealer R. E. Zerneke is typical of the way our dealers praise the Auto-Lite Sta-ful Battery." E. M. Lee, Northern Auto Supply Co., Marshfield, Wisconsin.

HERE'S WHAT Sta-ful DOES FOR YOU

- 1 Gives you a real sales leader . . . a battery that needs water only 3 times a year in normal car use.
- 2 Turns in a sweet profit on every sale.
- 3 Reduces time and bother required for checking and servicing of batteries.
- 4 Wins friends, boosts sales all along the line because the Sta-ful principle helps end a major cause of battery grief and failure.





<America's Favorite!

it's simply
to stock and sell
most people

y good judgment

III the spark plug

e
buy!



CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO



It's AMAZING how Pedrick piston rings help make *all* engine jobs come out right! "Heat-Shaping" does it. It takes *heat* to remove the stresses and strains set up in every ring by factory machining operations. It takes *heat* to make rings permanently correct in shape and tension!

Because Pedrick piston rings are "Heat-Shaped," they fit better, remain

efficient longer. They offer much greater resistance to sticking or warping.

*A Unique
Business-Building Service*

In addition to "Heat-Shaped" rings, Pedrick Franchise dealers get complete repair information, local sales aids, shop identification sign, national consumer advertising. Ask your Pedrick jobber.

No other ring gives you the advantages of "Heat-Shaping." These advantages help you avoid "come-backs," help you make customers really satisfied. No wonder Pedrick gives you the industry's most liberal guarantee. WILKENING MANUFACTURING Co., Philadelphia 42, Pa. In Canada: Wilkening Manufacturing Co. (Canada) Ltd., Toronto.

FOR 29 YEARS, SUPPLIER OF PISTON RINGS TO LEADING VEHICLE AND ENGINE MANUFACTURERS

ONLY **Pedrick** PISTON RINGS ARE "HEAT-SHAPED"

IMPORTANT? FOUR MILLION DRIVERS say so!

*One reason
is, it's
automatic*

Trico's Automatic Windshield Washer is the leader in car buyers' acceptance in 1949.

That's because car and truck owners really need and want it.

More than four million users tell others how indispensable it is when road mist, dust and grime blur the view ahead.

Right now Trico's stepped-up advertising is appearing monthly in 17 million copies of the Saturday Evening Post, Life, Time, Collier's and the Country Gentleman. And right now is the time to let your customers know that you can install it in a matter of minutes.



Fourteen makes of cars are piped at the factory for the "Two Little Squirts."

The famous "Two Little Squirts"



Windshield Washers

FULLY AUTOMATIC . . . NOTHING TO PUMP

Trico Products Corporation, Buffalo 3, N. Y.



advan-
e ad-
some-
mers
drick
beral
CTUR-
Can-
Co.

D"

1949



BLUE S TREAK

IT TAKES A HOT-FOOT WITH A GRIN!

One thing is certain: the Blue Streak contact in this breaker plate can take more punishment with less squawking than any other contact in the business. That's why it outlasts them all.

It has a contact area that is 55.4% larger than ordinary points—a special Blue Streak feature to reduce the heat of the arc-at-break. Instead of ordinary tungsten, the Blue Streak point is made of high amperage tungsten. Not only can it carry more current,

longer—it does so with hardly any burning or pitting.

The full length copper shunt cuts down resistance—allows the coil to deliver full power. The springs . . . the body—every part is precisely formed and, every piece is individually inspected to assure perfect fit.

Yes, you'll pay a few pennies more for this Blue Streak point but its quality assures longer life—it builds and insures your reputation.

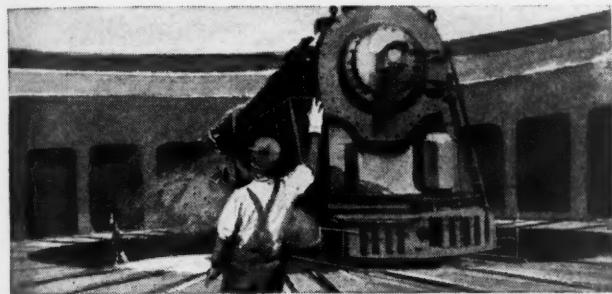
better your business...buy Blue Streak

STANDARD MOTOR PRODUCTS, INC., LONG ISLAND CITY 1, NEW YORK

"It's the SELF-STARTERS that go places," CARL CLAIMS

(Reading Time: 1 min., 58 seconds)

"I guess I just wasn't cut out for farm life. As far back as I can remember, I liked things that ran on wheels. All I ever asked for when Christmas rolled 'round were toy trains or automobiles. When I grew up and said I wanted a job in town, Dad said to Mom, 'Well, this is America. That boy has a right to do what he likes best. It's the self-starters that go places.' So off I went."



1 "First job I ever had was sweeping up in a locomotive repair shop. I liked engines, of course; but what interested me even more was automobiles. So I took a day off and went to see the local Chrysler dealer. He gave me a job selling used cars and was I happy! A few years of hard work and I was leading the sales force. The boss even had me pinch hit for him occasionally when he was away."



2 "Then came World War II and I enlisted. Didn't see much of Europe, though. Half an hour after landing in Normandy, a German machine gun banged me up. They sent me back to the States and I spent quite a while in an Army hospital. One thing about that spell was that I had time to do some straight thinking and plan for the future."



3 "Sizing things up, it seemed to me that the future of the retail automobile business was brighter than ever. That was something I felt I knew well. I'd heard that my old boss had retired and maybe I could get started there where I had friends and customers. Our old headquarters was idle, so I looked around for a capable partner with sound business experience."



4 "When I found him, we hustled to Detroit to see the Chrysler people. The dealership was open all right. And we had quite a talk. Of course, they checked up on us before we finally got the green light. Then we opened up in the old place, but we've since built a brand new building and business is really rolling. It's like Dad said, ' . . . This is America' . . . and as I see it there's still plenty of opportunity for young fellows to get going on their own horsepower."

Write for our free booklet containing a number of these stories of accomplishments by enterprising men. Chrysler Corporation, 341 Massachusetts Ave., Highland Park 3, Mich.



Chrysler Corporation

PLYMOUTH • DODGE • DESOTO • CHRYSLER • DODGE "Job-Rated" TRUCKS

"THEY NEVER MISS ...!"

by Gum

GAS STATION MEN ARE ODD DUCKS...
LIKE WHEN A TWO BIT CUSTOMER
BORROWS THEIR TOOLS...



THEY EXPECT TO GET 'EM BACK...
CAN YOU BEAT IT?

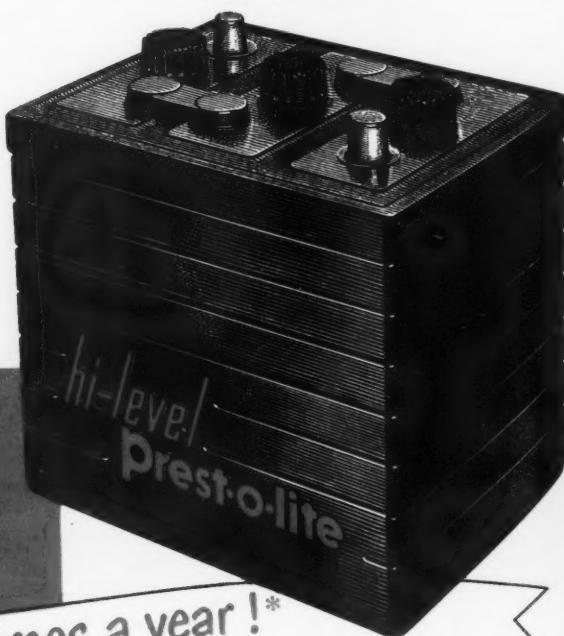


Copyright 1949, Prest-O-Lite Battery Company, Inc.

You can't lose with Hi-level

PLAN NOW to check the exclusive advantages offered by the Prest-O-Lite Profit Plan. Find out how the sensational Prest-O-Lite Hi-Level Battery helps win friends, boost sales and profits on every service and product you sell. Learn about the dramatic, attention-packed advertisements magazines carry to over 18,000,000 homes. Then add the famous Prest-O-Lite sales stimulators and point-of-sale helps. It's the greatest campaign in Prest-O-Lite history. Talk now to your jobber's salesman, or write to

PREST-O-LITE BATTERY COMPANY, INC.
Toledo 1 Ohio



prest-o-lite
hi-level battery

... needs water only 3 times a year!*

*In normal car use.

it's new...
it's free!!!

MAIL COUPON NOW FOR YOUR COPY!

THE "SALES-MAKER" will help you to extra profits the day you begin using its sure-fire tips on "how to sell oil filters!"

Big, action pictures show you *what* to do . . . and *how* to do it. Short, down-to-earth explanations make this pocket-size folder easy to read and understand in a hurry. You and your employees will find the "SALES-MAKER" is written to you and *for* you.

Put the "SALES-MAKER" to work boosting *your* profits! If you haven't yet received your *free* copy from your Purolator supplier—or if you need additional copies for employees—act now while they last. Just mail in the convenient coupon below . . . TODAY!

**SALES
MAKER**

...15 proved, useful
tips to help you sell
Purolator Oil Filters!

**SEND COUPON TODAY
FOR YOUR "SALES-MAKER"!**

Purolator Products Inc., Dept. C
744 Broad Street
Newark 2, New Jersey
Please rush me ____ free copy(s) of the
"SALES-MAKER."

Name _____
(Please Print)

Company _____

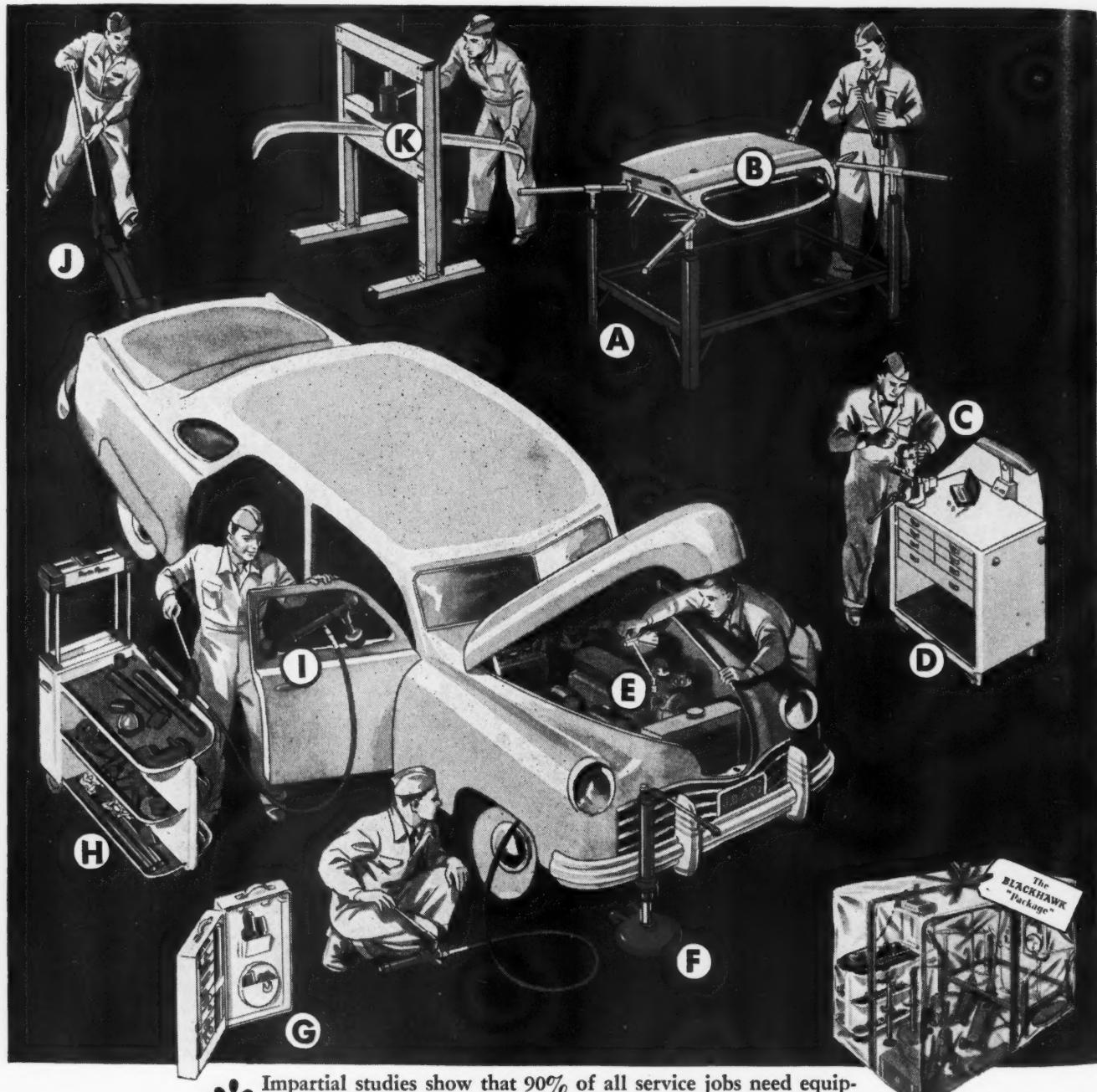
City _____

Zone _____ State _____



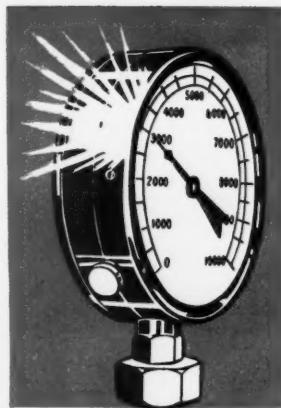
PUROLATOR PRODUCTS INC., Dept. C
Newark 2, New Jersey and Windsor, Ontario, Canada

BLACKHAWK®.....your } PROFIT-PARTNER* on every job! }



***** Impartial studies show that 90% of all service jobs need equipment such as built by Blackhawk . . . and these are the major profit jobs! Products from the big Blackhawk "Package" serve every department, as shown above. Typical of equipment on which Blackhawk gives you "MORE FOR YOUR MONEY" are:

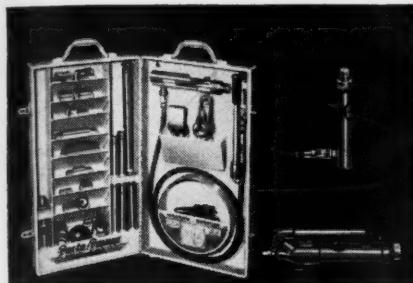
- A** RECK-RACK . . . essential for practical holding of modern body sections.
- B** WEDGIE . . . operated by Porto-Power — spreads inside compartments and doors.
- C** WRENCHES . . . Midgets up to giant sizes . . . socket, open end, and box types. Exclusive features.
- D** WRENCH CHESTS . . . Portable and stationary . . . the most practical ever designed.
- E** TORQUE INDICATORS . . . for proper tightening of nut and bolt assemblies.
- F** LIFT-POST . . . now the standard way to lift modern cars.
- G** BANTAM 2-ton Porto-Power. See next page for big features.
- H** PORTABLE PRESSES and stands — for Porto-Power.
- I** PORTO-POWER hydraulic equipment for rebuilding, repairing, reconditioning.
- J** SERVICE JACKS . . . the most dependable ever built.
- K** HAND JACKS . . . exclusive features make them do more . . . last longer!



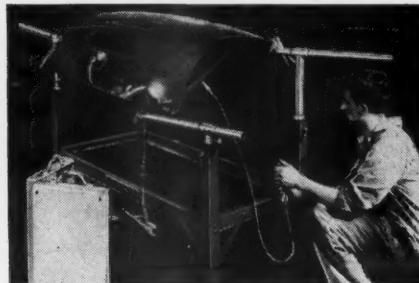
The Pointer Hit Less Than 2 Tons 90% of the Time... So...

... Bantam Porto-Power was born — *this way*. An analysis of damaged cars showed that rebuilding work falls into two divisions: (1) Alignment of major supporting members — which generally requires the regular 10-ton Porto-Power; and (2) straightening of sheet metal panels and minor supports. Shop studies proved that *90% of the work in that second division required no more than 2-tons of hydraulic power!* Further, equipment of that capacity could be *more compact*. Consequently, Bantam 2-ton Porto-Power was added to the Blackhawk "Package" to give you this economical advantage.

And, because **BANTAM** Porto-Power was "BORN RIGHT",
it is NECESSARY Equipment for Profits!



BANTAM is a Porto-Power all-directional hydraulic jack with attachments . . . 2-ton capacity. It gets in where bigger units can't go, is easier to handle. Furnished in various practical assortments.



BODY WORK is a **BANTAM** specialty. 90% of all sheet metal jobs require no more power than furnished by **BANTAM**. A real profit-partner with the new Blackhawk RECK-RACK.



BANTAM fits into tight compartments. It slips through hand holes to realign doors. Saves costly replacements. Bantam is superior to expensive, cumbersome devices for door work.



WINDOW frames are efficiently and profitably reshaped by **BANTAM**.



FENDER work is a big role of **BANTAM**. No pimpling or stretching.



REPAIR jobs speed up with **BANTAM** — as on muffler removal.

Fast used car appearance reconditioning and the growing competitive fight for profitable body business are two major reasons why every good shop should have *at least one* complete BANTAM Porto-Power. And the price is so attractive that you can

buy it without waiting for a big budget.

BANTAM Porto-Power is typical of profit-making products from the big Blackhawk "Package." Ask your Blackhawk jobber salesman to show you catalogs on the complete line.

BLACKHAWK MFG. COMPANY, Dept. M-659, Milwaukee 1, Wisconsin

BLACKHAWK®

HAND JACKS • SERVICE JACKS • WRENCHES • PORTO-POWER • RECK-RACK

SEALED P

READ WHAT **NEW YORK** SAYS ABOUT
SEALED POWER MD-50
The only ring with the **FULL-FLOW SPRING**

EXCLUSIVE ADVANTAGES

of the **FULL-FLOW SPRING**
include:

FULL FLOW OF OIL

Through Ring



Through Spring



Through Piston Oil Holes



TWICE AS MANY SLOTS

for double oil drainage



CURVES

instead
of humps



to insure

UNIFORM PRESSURE

MORE BEARING AREA FOR LONGER LIFE



Full-Flow Spring's greater
bearing area means
longer life for ring and
spring. Greater resilience
means easier starting.

"We put in a set of Sealed Power Rings with the new Full-Flow Spring. We were skeptical because the engine was so free and easy to start. Owner reports he is using one quart of oil every 2000 miles. We are convinced the MD-50 Ring with the Full-Flow Spring does a much better job of oil control because of its greater flexibility." Rudy's Auto Service, Buffalo, N. Y.

D POWER DOES BEST JOB

Say Leading Repairmen

All over America they're cheering
MD-50 STEEL OIL RING

The only ring with the FULL-FLOW SPRING

In a year and a half the amazing MD-50 Steel Oil Ring has hung up performance records never equalled by any other ring! "2500 miles per quart of oil!" . . . "Motor never tightened!" . . . "15,000 to 25,000 more miles per ring job!" . . . These are typical reports from all over the country.

Sealed Power's exclusive advantages give you an inside track on customers' good will, on profitable parts and accessories sales and repeat repair business. As a Sealed Power dealer, you'll be proud of your work. You'll be selling rings that stay sold. It pays to sell ring jobs that you know will save oil, save gas, seal power. Sell Sealed Power!

There is still time for you to cash in on Sealed Power's great 1949 program—including the finest dealer franchise, the strongest national advertising, the most complete array of merchandising helps in the industry. Talk to your Sealed Power Distributor!

Sealed Power Corporation, Muskegon, Michigan.

Nationally advertised in Saturday Evening Post, Collier's, Popular Mechanics, Country Gentleman, Successful Farming, Progressive Farmer.



**FRANCHISED
DEALER**



**EXPERT
ENGINE SERVICE**



This big FREE thermometer sign identifies you as Sealed Power Headquarters.

Sealed Power
PISTON RINGS

BEST IN NEW CARS!

BEST IN OLD CARS!

QUIET PLEASE!

A GREAT NEW WALKER SILENCER SELLING EVENT MAKES THIS YOUR FINEST PROFIT SEASON

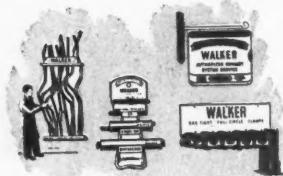
• "Quiet Please" is more than a merchandising event—it's a short cut to greater muffler business. Noisy mufflers are worn-out mufflers—and worn-out mufflers need replacing. *Let your*

ears tell the story. Listen your way to more muffler money. Cash in on the countless cars still driving around with noisy, wasteful winter-worn exhaust systems.



Powerful consumer advertising backs you up—all the way!

Take full advantage of Walker's dramatic, QUIET PLEASE advertisements now appearing in color in The Saturday Evening Post—messages which urge your customers to get car comfort and quiet, improved engine performance, and greater gasoline mileage by installing new, quiet, efficient Walker Silencers.

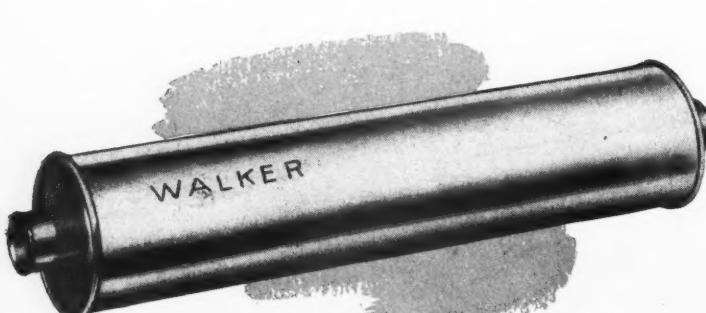


Cash in on this great muffler selling opportunity

Be Muffler Headquarters in your community. Identify yourself as the neighborhood Authorized Walker Dealer with Walker's point-of-sale displays and merchandising aids. Inspect the exhaust system on every car you service. Keep your stocks of Walker Silencers and pipes in good selling position at all times.

Every time you install a Walker Silencer you'll find it fits in every detail—the kind of precision fit which gives you low-cost, high-profit jobs.

Make your cash register ring with the I.T. line, the FIT line, the PROFIT line—Walker *Individually Tuned* Silencers.



INDIVIDUAL TUNING MAKES THE DIFFERENCE

Over 50% of Walker *Individually Tuned* Silencers are, or were when designed, original equipment on America's finest automobiles. All other Walker "Individually Tuned" Silencers are equal to or better than the muffler originally installed on the vehicle. Here's proof of Walker's finer engineering. I.T. does make the Difference.

WALKER MANUFACTURING COMPANY OF WISCONSIN, RACINE, WISCONSIN

QUIET PLEASE!

QUIET
PLEASE!

QUIET PLEASE!

QUIET
PLEASE!



FOR I.T.*...FOR FIT...FOR PROFIT...SELL

WALKER SILENCERS

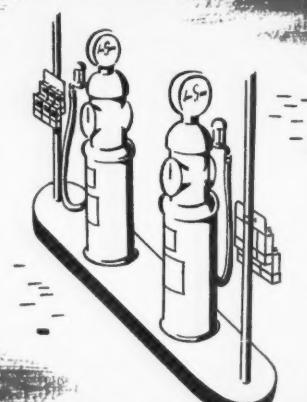
*Individually Tuned to each make and model of car

ALSO MAKERS OF WALKER JACKS, ELECTRIC LIFTS AND OIL FILTERS

Blue Profit

with this
**MIRACLE POWER
MERCHANTISOR**

NEW! Miracle Power Merchandisor #5513. Never in your way. Hangs on pump island lamp posts, lube room walls. No "taking in" at night. Blue and yellow, holds 6 cans of Miracle Power at point of sale. Complete with fittings.



Bring your oil and gas customers up close to Miracle Power by displaying this new merchandisor in the busiest spots available. Every time you pump gas, or sell oil, take a can of Miracle Power from this handy sales builder and hand it to the driver. Let the customer read what Miracle Power will do for his car. You'll add lots of steady Miracle Power customers . . . pocket extra, increased profits! Get the Miracle Power #5513 Merchandisor from your AP Distributor.

NOW IS THE HOUR TO ADD MIRACLE POWER

THE **AP** PARTS CORPORATION • TOLEDO 1, OHIO

MUFFLERS • PIPES • MIRACLE POWER • dgf-123

GLASS FRONT

BRASS FITTING STOCK

IMPERIAL



23" wide,
20" deep,
21" high.



"Now we can find
any brass fitting
in a jiffy."

See Your Jobber

IMPERIAL

Brass Fittings • Flexible Lines • Shut-Off Valves • Barrel Faucets • Tube Working Tools

- Every Item Visible
- Broad Coverage
- Clear Labeling
- 80 Compartments—
Each with raising lid.

Each compartment has
glass front and raising
lid . . . and is fully
labeled with picture
of fitting, catalog
number, and size for
quick selection.

NOW, the finest, most accepted method of stocking brass fittings is yours at less than the cost of parts alone. *There is no charge to dealers for this sturdy glass front cabinet.*

What's more, this glass front fitting stock quickly pays for itself in the time it saves. *It eliminates costly pick-ups and delays.* Contains all the most needed items.

Makes fittings extremely easy to pick out . . . Keeps them sorted . . . makes checking stock exceptionally easy. Ask for Bulletin 373.

No. 450-F Imperial Glass Front Stock complete with 398 Brass Fittings, 10 Shut-Off and Drain Cocks.....Dealers Cost \$53.35

And there's NO CHARGE for cabinet.

THE IMPERIAL BRASS MFG. CO.
1217 W. Harrison St., Chicago 7, Ill.

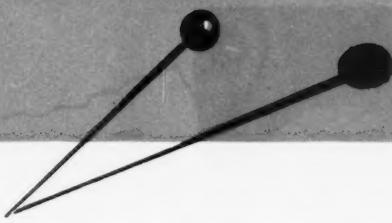


Why your jobber
stocks and recommends



- advertised
automotive products

The fastest selling lines are



Your jobber knows that the Post reaches the people *who mean business* . . . the very people in your community who spend the most to keep their cars in tip-top shape.

And from the pages of the Post they have come to know and *prefer* certain nationally advertised brands of accessories, parts, gasoline, oil, tires and tubes.

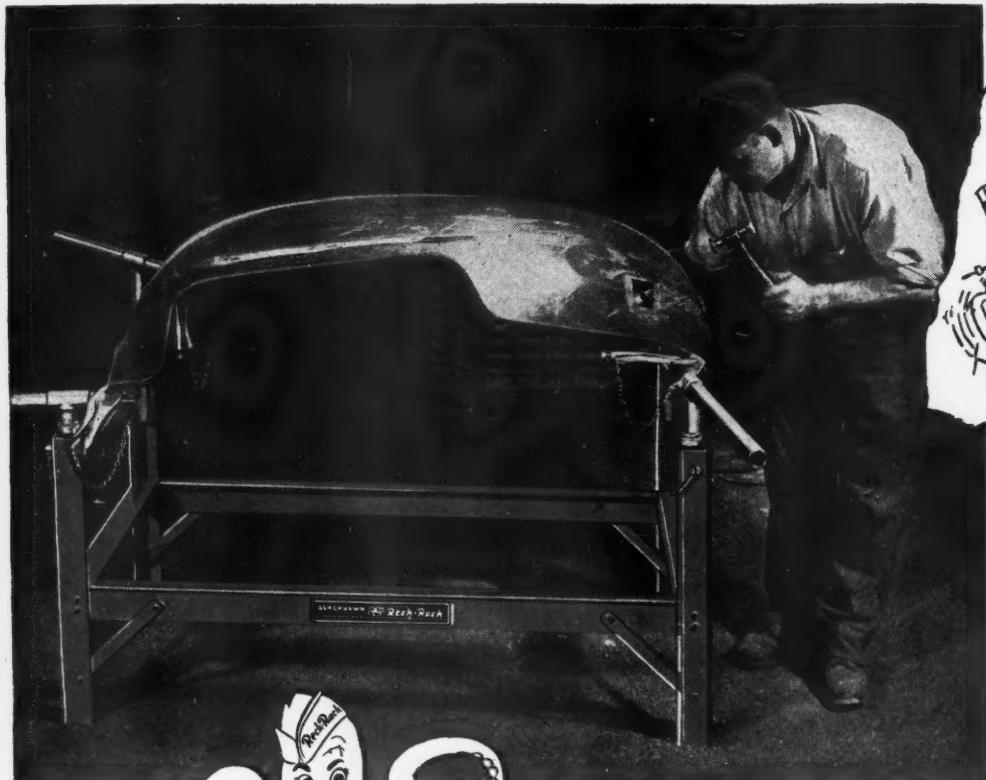
When *you* handle these well-known, popular items you get quicker, easier sales and faster turnover!

So next time your jobber's salesman calls, ask him about the Post-advertised lines he handles. He'll tell you they're *his* fastest-selling lines. And you'll find they're *your* fastest-selling lines, too!



Pick up any copy of the Post and count the number of automotive ads. You'll be amazed at their number and variety. In fact, The Saturday Evening Post carries *more* automotive advertising than any other national magazine.





*Hold her knute,
she's
a rarin'!*



Reck-Rack lets you work instead of wrestle

Blackhawk Reck-Rack gives body men a break. It's the answer to a body department's dilemma of how to properly hold cumbersome body sections, particularly on new postwar cars. As versatile as an octopus, Reck-Rack rigidly *holds any size or shape of body section in any position*. It speeds body work, makes it easier and more convenient. Ask your Blackhawk Jobber about Blackhawk Reck-Rack now. Say goodbye to special jigs and haphazard holding methods.

A Product of

BLACKHAWK MFG. COMPANY, Dept. J-659, Milwaukee 1, Wisconsin

- DOORS
- LIDS
- HOODS
- FENDERS
- GRILLES
- BODY PANELS

RECK-RACK ELIMINATES SPECIAL JIGS



CLAMPING



GALLOPING HORSES



DRAWERS



TABLES

RECK-RACK SAVES TIME ON JOBS LIKE THESE



STRAIGHTENING



HAMMERING



SANDING



DOLLYING

Another Money-Making
Addition to the Famous
Porto-Power Line.

HAND JACKS

BLACKHAWK

SERVICE JACKS

PORTO-POWER EQUIPMENT

Leader in the Creation
of Practical New
Service Equipment

SOCKET WRENCHES

MOTOR AGE

MAY 1949

Dateline



DETROIT

— by Leonard Westrate —

Plymouth Div. of Chrysler Corporation is in production of its 111-in. wheelbase, 3-passenger coupe, and the 2-door sedan and the all-steel station wagon will go into production in a few weeks. Only price announced is for the 3-passenger coupe which bears a factory retail price of \$1295. Dodge currently is in production of its Wayfarer line on a 115-in. wheelbase. It includes a roadster 3-passenger coupe and 2-door sedan. Price of the 3-passenger coupe is \$1525.



Belief in Detroit is that parts prices have hit their peak and that there will be some declines later this year. Already some items are purchased cheaper from vendors, but the reductions are not of important proportions as yet. Inventories bought at higher prices will be worked off before any sizable reductions occur. At any rate, it is thought that price cuts, when they come, will not be a flat lump sum or percentage across the board but will be in the form of adjustments on individual items. At any rate, parts prices never increased as much percentagewise as did new car prices and will not be cut as fast or as far.



There is considerable speculation in Detroit that another price cut by General Motors around the first of June is a possibility. There is no official confirmation from the company, of course, but observers point out that the cost of living adjustment based on the B-L-S Index is due about that time. Offsetting a possible reduction on that score is the annual improvement raise of 3 cents an hour called for in the GM contract and due May 30. However, GM prices were reduced only slightly in February and with continuing reductions in material costs there is a belief that GM might reduce prices further.



Passenger car builders think it is likely that direction signal equipment may be required on all cars by legislative action within a few years. Minnesota and New York now require it and it is believed that similar legislation will spread throughout the country eventually.



All reports to the contrary, no state legislature as yet has passed legislation requiring polarized head lamps on automobiles after Jan. 1, 1951. A check with AMA shows that legislation was introduced this year in three states to require polarized lighting and that in two states, New York and North Dakota, it died in committee, and in the third state, Ohio, ultimate action likely will be of the same nature.



Even though Chevrolet Div. of GM is today in the best position of any automobile manufacturer so far as demand goes, it is actively preparing for more rugged competitive selling. A major step is the appointment of Warren R. Peel as manager of the national used car department, which has been in a state of suspended animation since before the war.

Dateline DETROIT . . . Continued from Page 33

General consensus indicates that replacement parts business this year will be off somewhere between 10-15 per cent from the 1948 high. Accessories, however, already are showing signs of a much greater drop with the expectation that they will be off 25-50 per cent.



Automatic transmissions continue as the hottest item in the passenger car field. Packard has just announced its Ultramatic, which uses a torque converter for acceleration and locks up in positive mechanical drive for cruising. Borg-Warner says it expects to be in production before the end of this year on one or perhaps two types of fully automatic transmissions. Latest report we have says that Lincoln may start installation of the GM Hydra-Matic sometime this month with the announcement in June. Chevrolet's torque converter is coming along rapidly and although it is reported it might be introduced this Summer, our guess is that it will not come until introduction of 1950 models late this year.



While little data is available on results of experiments by automotive engineers of the magnetic clutch, information that has seeped out indicates that further development will be necessary before it is adapted to automotive use. It is reported that the unit has a tendency to "hang up" or fail to release instantly when power is cut off. However, it may yet find a place—possibly as part of an automatic transmission.



Competition is getting more rugged all the time in the tire industry. Firestone Tire & Rubber Co. has announced introduction of a fourth line passenger car tire. The move is said to be to meet mail order house prices.



When Ford Motor Co. reduced prices recently, it at the same time restored the dealer discount rate nearly to the level existing before it was cut coincident with introduction of the 1949 models last June. The new discounts now are set at a flat 24 per cent which is only slightly below the level prevailing before the cut.

Car life guarantee insurance appears to be catching on rapidly among new car dealers. This essentially is an insurance policy sold by the dealer to new car purchasers for a two-year period, insuring against loss from failure of parts due to poor workmanship or faulty materials. Biggest advantage to the dealer is that the policy requires returning the car to the dealer for monthly inspection and lube job and oil change every 1000 miles. Started initially by a Detroit dealer, the plan is increasing rapidly and other concerns are in the field with such policies.



The recurring rumor that Sears-Roebuck & Co. is negotiating with one of the independents for sale of one or more of its models again is abroad. The report is not without some foundation since it has been confirmed that Sears tried to negotiate with Kaiser-Frazer not too long ago to handle the sale of the Traveler utility model. It is reported now that Sears is trying to make a deal with Willys, but there is no confirmation from either company.



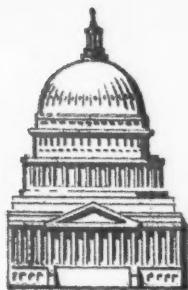
We have a report that the "fishtail" rear fenders on the Cadillac are slated to be abandoned in the model which will appear this Fall. The fenders caused considerable comment when they were introduced nearly two years ago, but since that time have come to be accepted.



Service manager for one of the passenger car manufacturers makes an interesting point about ability of independent shops to tune modern automobile engines effectively. He asserts that with higher compressions and closer tolerances adjustments are difficult to make without adequate analyzer and other shop equipment and that independents will be forced eventually to install scientific equipment.



Trend of legislation dealing with installation of television in automobiles is becoming fairly well defined. So far several states have barred installation of video screens in view of the driver, but to our knowledge none yet has forbidden installation of television in automobiles.



— by E. J. Hardy —

Washington *Wire*

Of independent retailers, only automobile dealers were showing higher sales (10 per cent) in March, 1949, than a year ago. According to Census Bureau reports, retail business in general was down 6 per cent for the month over last year but up 16 per cent from February, 1949. Filling stations were doing 1 per cent less business in March this year than last but 11 per cent better than in February. Motor car business for March was 25 per cent better than in February.

Employment opportunities for automobile mechanics are likely to remain good for the next few years, according to a Labor Department job survey conducted for the Veterans Administration. The Department finds the average basic pay in cities to be about \$1.15 an hour for semi-skilled workers and \$1.60 for skilled workers with varied benefits thrown in such as paid vacations.



Army purchases of jeeps at an estimated price of approximately \$2,500 each came in for considerable criticism at recent appropriations hearings. The price was arrived at as follows: \$1,176.86 the factory delivered price for jeeps; \$823.14 for 20 extras; and \$500 for one year's supply of spare parts, including pipe line requirements. The Army was ordered by Congress to apply part of its appropriations cut to reducing "the number of gadgets procured for non-combat vehicles."



Two-way radio has already been authorized for some 200,000 vehicles, according to the Federal Communications Commission. The Commission anticipates that within five years, 500,000 vehicles will be so equipped. Included in existing authorizations are 32,000 radio-equipped taxicabs, 26,000 utility trucks, and 50,000 mobile police units. In addition to two-way radio, there are also 7,000 vehicles equipped with radiotelephone enabling the occupant to talk via regular telephone switchboards with any other phone in the country.

Following the recent Federal order prohibiting the use of premium gasoline in most government vehicles, the Bureau of Standards reports that at most, a 1 per cent loss of power might result, provided the spark is properly retarded.



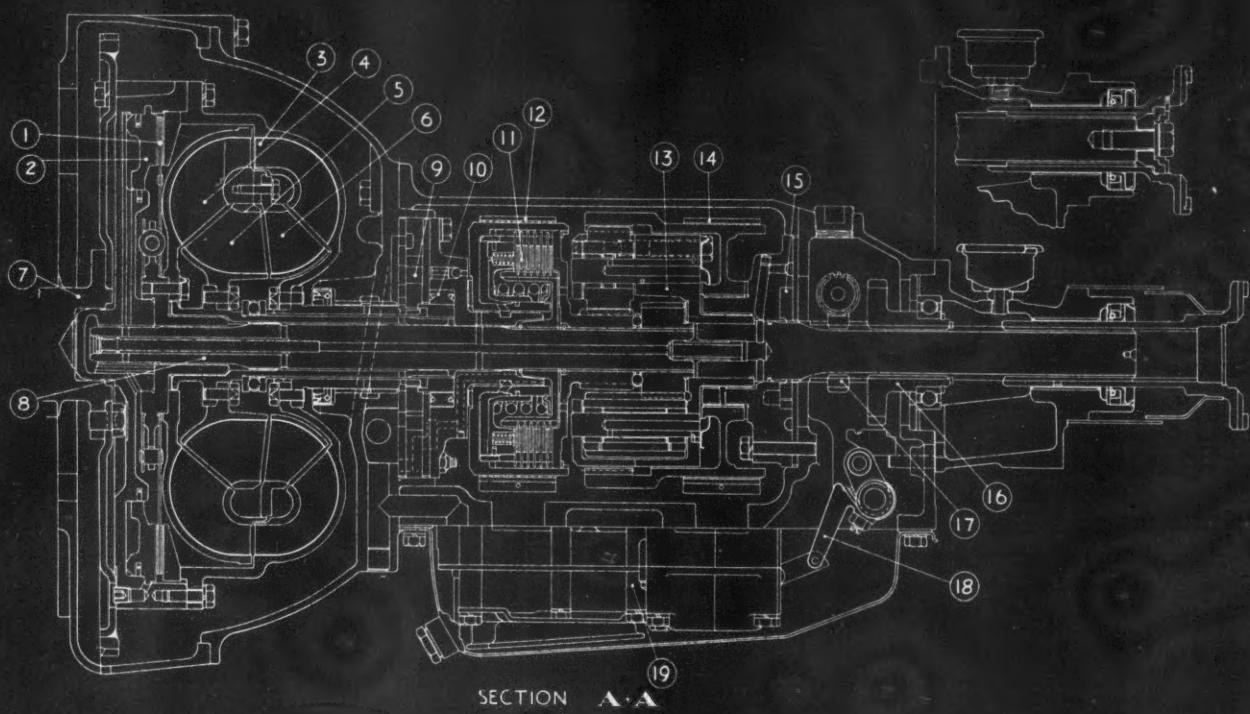
The truck-trailer industry is in the doldrums. February output, as reported by the Census Bureau, amounted to only 2,280 units, the lowest since prewar days.



Bureau of Mines engineers estimate the average current cost of producing synthetic fuels at somewhere between 10 and 15 cents a gallon. While still substantially higher than the cost of producing fuels from petroleum, Bureau officials predict that with the cost of discovering petroleum still rising that some day the two cost lines will cross, perhaps within the next 5 to 10 years.



Cost of overhaul is the major consideration when it comes to junking Army vehicles. Generally speaking, the Army figures that when it costs approximately 35 per cent of original cost to overhaul a vehicle it is no longer profitable to do so. During the 12-month period ending June 30, the Army expects to dispose of a total of 8,450 unserviceable vehicles for a total yield of \$2,563,433. Parts sales for the same period will total about \$1,900,000.



1—Direct drive clutch.
 2—Direct drive clutch piston.
 3—Converter pump.
 4—Converter first turbine.
 5—Converter reactor.
 6—Converter second turbine.
 7—Crankshaft.
 8—Output shaft from converter or direct clutch.
 9—Front oil pump.
 10—Reactor overrunning clutch.
 11—High range clutch.
 12—Low range brake band.
 13—Low and reverse planetary gear set.
 14—Reverse brake band.
 15—Rear oil pump.
 16—Parking member.
 17—Speedometer and governor driving gear.
 18—Selector valve inner lever.
 19—Control unit.

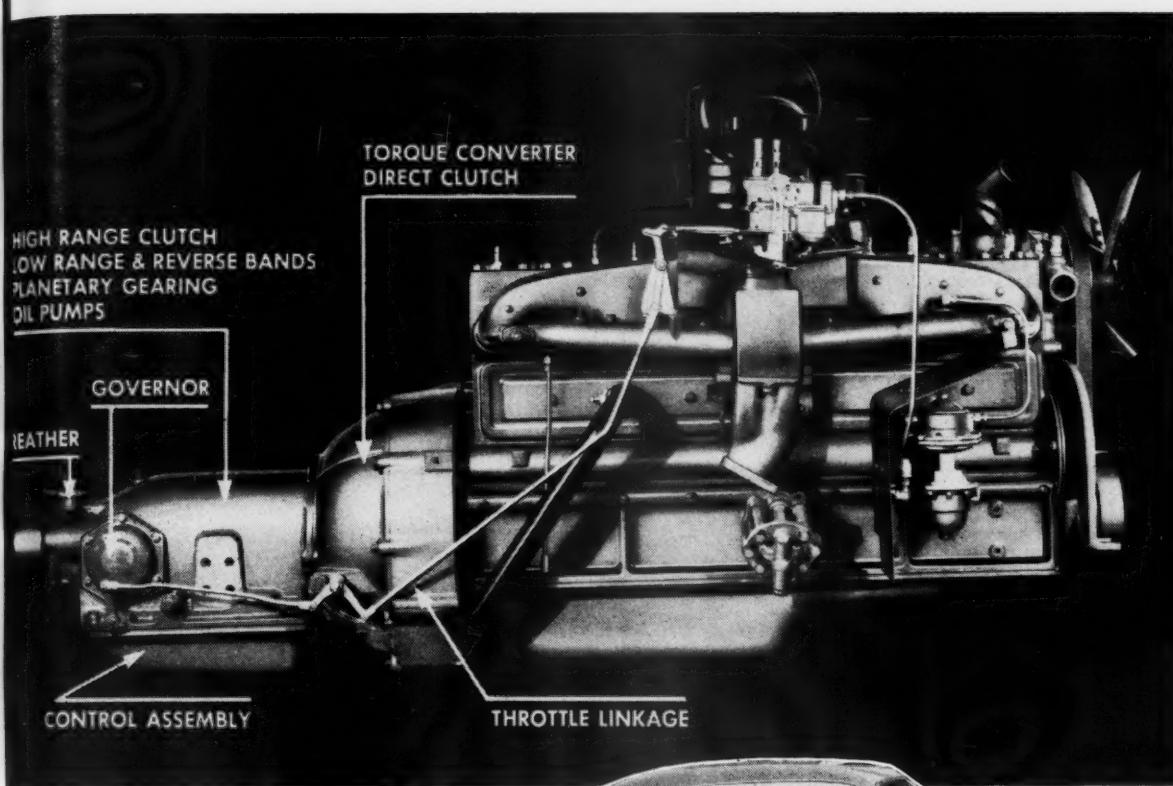
New PACKARD Features Torque

Packard's automatic transmission, called Ultramatic Drive, is a combination

THE long awaited announcement of the Packard automatic transmission is being made at this time with advice that initially the device will be made available only as standard equipment on the 160-hp Custom line.

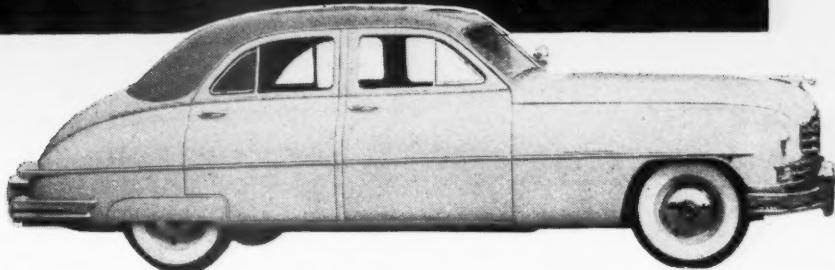
The new line of Golden Anniversary Packards includes the 135-horsepower Eights on a 120-

inch wheelbase; the 150-horsepower Super Eights, on a 127-inch wheelbase; and the 160-horsepower Custom Eights, on a 127-inch wheelbase. They are in 14 different body types, including a limousine, seven-passenger sedans, convertibles and a "Station Sedan." The wheelbase of the new Super Eights is seven inches longer



Above. The new Packard Ultramatic transmission, showing the fundamental elements of the mechanism. The straight-eight engine has increased power.

Right. The Packard Super DeLuxe touring sedan shown here has a longer wheelbase than previous models.



Converter

torque converter and direct drive

than that of the comparable previous model, but overall length is held to 213½ inches.

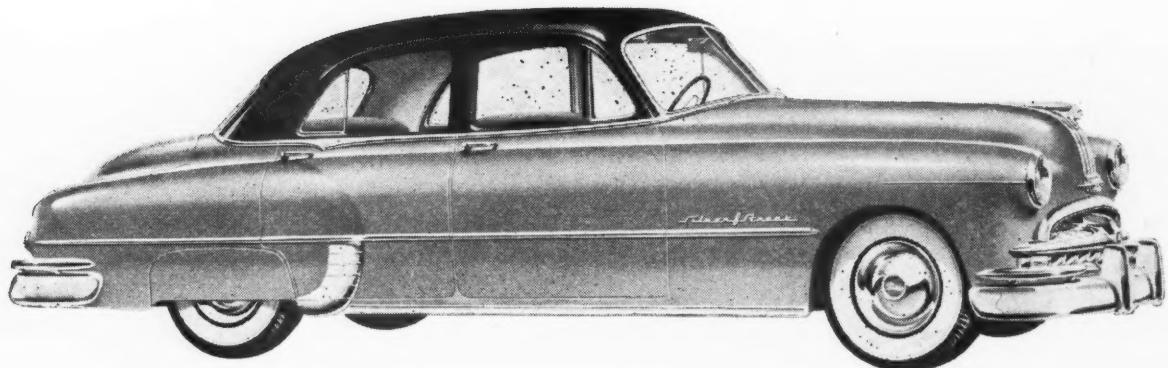
Now that the wraps are off, it is of interest to find that the "Ultramatic" drive is of the torque converter type, featuring a three element converter with but one reactor stage for torque multiplication. Yet with this arrangement Pack-

ard is able to attain torque multiplication of the order of 2.4 to 1.

Distinguishing feature of the device is the provision of a direct drive clutch of mechanical type so designed as to function properly in solid oil. As will be explained later the direct clutch is applied hydraulically through the action of a special type of centrifugal governor. The torque converter, unlike other commercial designs, is used only

for acceleration and is cut out automatically by selective action of the governor and throttle pressure when the direct clutch is applied. This gives a direct mechanical coupling for most driving conditions in contrast to other commercial types in which the converter must act as a fluid

(Continued on page 74)



P O N T I A C

DIMENSIONS

Overall length . . . 202½ in.

Overall width . . . 73¼ in.

Wheelbase . . . 120 in.

1 9 4 9

Facts vs. Expert Fancies

by Joseph Geschelin, Detroit Editor

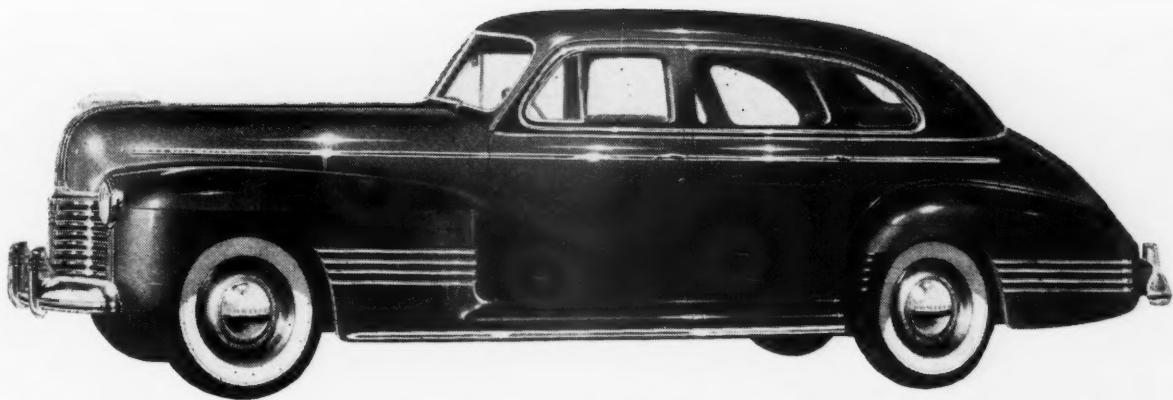
SINCE the war a number of automotive "experts" and "technical" writers, not associated with the industry, have written devastating articles in national magazines attacking everything about modern motors cars — their styling, their size, their mechanical design. Curiously enough, their general tenor is that we must have small cars — and they mean specifically the kind of automobiles used in Europe. You get the feeling that the American public has been duped by American manufacturers.

The most recent blast on motor cars is a very persuasive and well written article appearing in a national magazine in April called "Those Big

Fat Cars." To an engineer it's really a lulu.

It starts with a skillful recital of some generalizations about new cars that have been current for the past couple of years. One is that present day cars are too big to get into home garages.

While cars have been gradually getting wider and longer over the years, if we're comparing 1941 models with postwar models, facts do not justify statements that there's a *trend* to wider, longer cars. Nearly every car, measured bumper to bumper and at the widest outside dimension, is smaller, or the same size, as its prewar counterpart, and in many cases is roomier inside.



P O N T I A C

DIMENSIONS

1 9 4 1

Overall length . . . 202½ in.

Overall width . . . 76¾ in.

Wheelbase . . . 119 in.

With a smattering of ignorance, self-styled experts criticize present day automotive design. It's time for facts!

The exceptions are: Mercury has upped from 202.5 in over-all length to 206.7 inches; Nash, from 208.6 to 210 long; in width, Mercury was 74 inches at the widest point, now is nearly 77; Hudson was 73, now is 77; Nash was 75.3, now is 77.5; Packard was 76.1, now is 77.5. All GM cars and all Chrysler Corp. cars are either unchanged, or reduced in width and length.

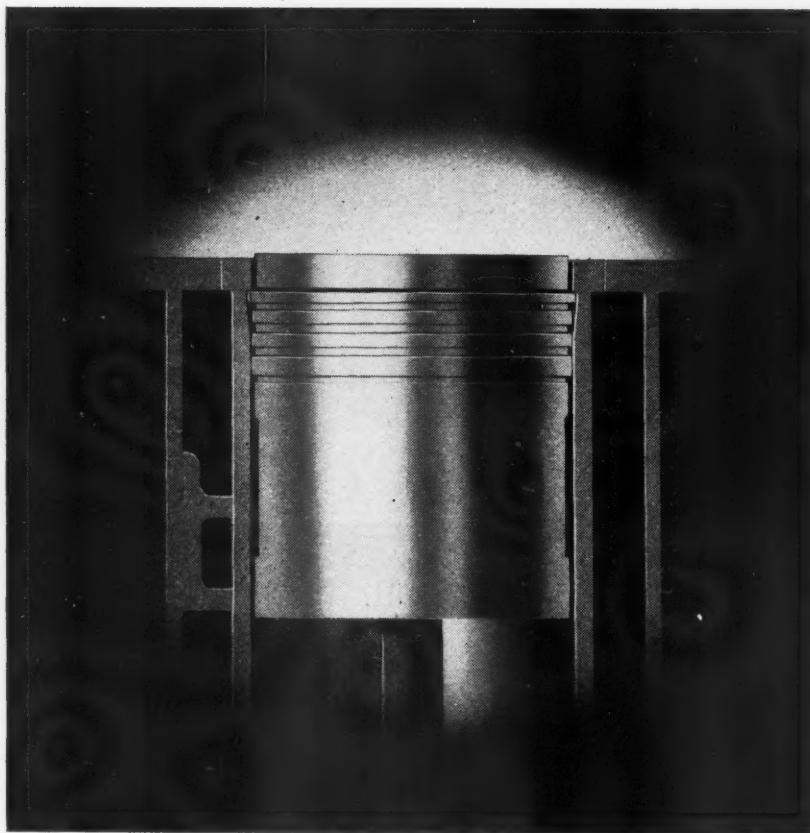
By the way, one of those magazine "experts" told of a Pontiac owner who recently bought a 1949 Pontiac and had to rebuild the whole garage. Figure it out for yourself. Pontiac formerly was 202½ inches long, and in '49 is exactly the same. Pontiac's width was 76.75

inches—now is 73.25 inches—3½ inches less at the widest body point.

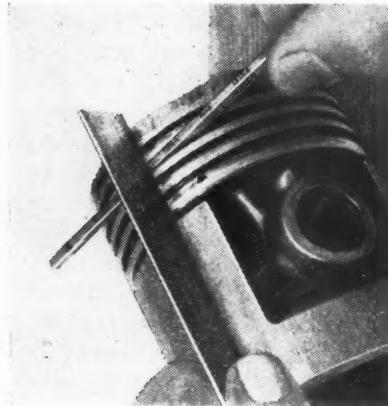
The only way a garage can be too small for a '49 car occurs when a person buys another model (like a Ford owner buying a Lincoln) or happens to own a car built some years prior to 1941, and then switches to a '49. And only in some cases, would that make the garage too small. But as between '41 and '49, the over-all trend has been for narrower and shorter cars—and we have the figures to prove it.

Here are figures on our "biggest" cars: Lincoln was 217 inches long, now is 212½; it was 77.8 inches wide, now is 76.6; Hudson was 207 inches long, now is 207½; it was 73 inches wide, now 77; Packard was 215.5 inches long, now is 212.6; it was 76.1 wide, now is 77.5; Buick Roadmaster was 217 inches long, now is below 215; it was 78.6 inches wide, now is 78¾; Olds was 213 inches long, now is below 212; it was 78.75 wide, now is 77¼; biggest Chrysler was 234.75 inches long, has been reduced; it was 77.75 inches wide, and has been reduced.

It is stated that the cost of repairing sheet metal on modern cars is enormously high. In
(Continued on page 86)

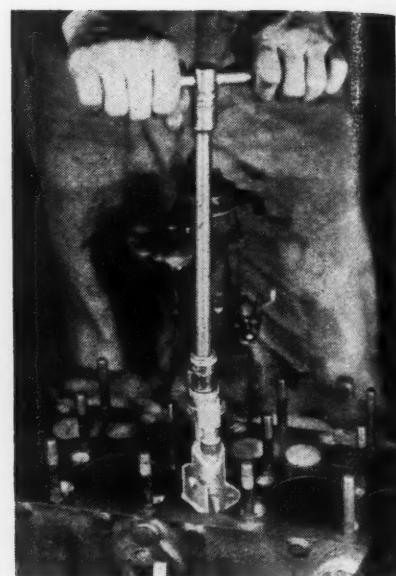
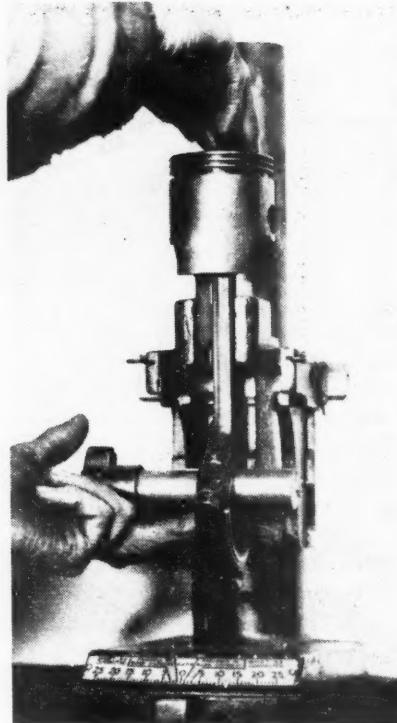


An exaggerated view of a ridge at the top of a cylinder, showing its effect on the top ring and land. Note the excessive top ring clearance, the main cause of blow-by.



Measuring the groove depth. Grooves must be free of all carbon before taking this measurement.

Checking for bent, twisted or misaligned connecting rods.

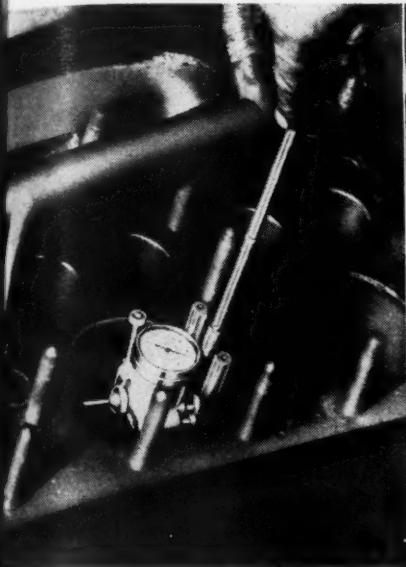


Removing the ridge with a ridge reamer. This is an important part of every job.

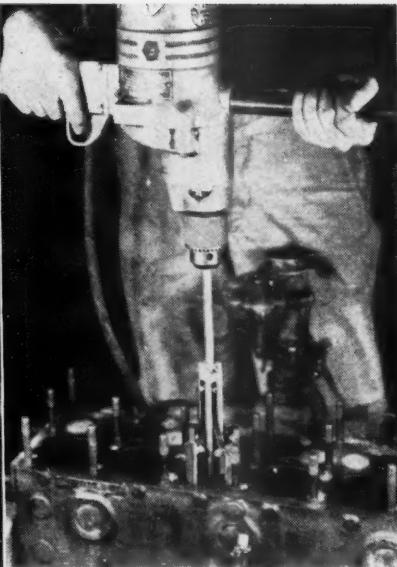
Better

ON any ring job the mechanic who is going to do the work on the car should be allowed to try the car on the road and make notes on its condition; on blowby, oil pressure, and noises. In this way, he has some idea of what to expect when he tears it apart. Installing new rings in an engine is not always the full answer to the oil burning prob-

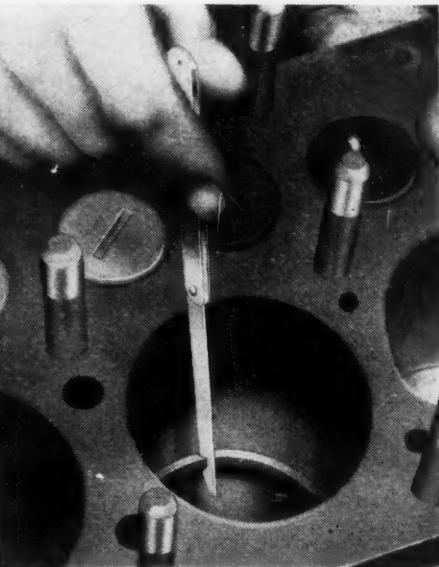
Dial gage.
Ridge Remover.
Chamfering tool and drill.
Bearing leak tester.
Compression and vacuum gage.



Using a dial gage to check the cylinder bore for taper and out-of-round.



Honing the cylinder. Bores should be thoroughly cleaned out after this operation.



Checking ring gap clearance. This should be done with the ring level in the bore.

Ring Jobs PAY OFF . . .

by Jack Montgomery
Technical Editor

lem. Many times an engine is torn apart and the cylinder bores and pistons look good and are within the prescribed wear limits, but for some reason or other the car uses oil after the over-haul. If more attention were paid to the engine before disassembling, a lot of these comebacks could be prevented.

It is good practice to make an oil test after the oil pan is removed in order to determine the condition of the bearings, especially the main and camshaft bearings. If this test is satisfactory and the oil pressure is low, then remove the oil pump, examine it, and replace all the worn parts.

Always remove the ridge on top of the cylin-

ders before removing the pistons, to prevent damage to the ring lands. After the pistons have been removed, the top ring groove should be checked. If the groove clearance is more than .005 in. with new rings installed, blowby and loss of compression will result. Satisfactory results can be obtained by widening the grooves and installing spacers or a wider ring.

Pistons should be cleaned and all the carbon removed from the lands and oil drain holes, then checked for wear and collapse. It is also advisable to chamfer the piston below the bottom oil ring. This chamfer will help control the oil. Various methods can be used for restoring

(Continued on page 100)

Tools and equipment necessary

Set of inside and outside micrometers.
Ring filer.
Rod aliner.
Ring land tool.

Ring compressor.
Cylinder hone.
Pin hole reamer or hone.
Valve guide puller.
Valve removal tools.

Torque wrench.
Timing light.
Bench grinder.
Valve seat grinder and refacer.
Hand tools.

Pop Gets the Breaks



Although Pop O'Neill wasn't fooled by the odd performance of Miss Brewster's car, it gave his best mechanic a bad few minutes

by Charles M. Kenyon, Managing Editor

HELLO, Miss Brewster," said Tommy Winters cheerfully, as a 1941 Oldsmobile in beautiful condition pulled up in front of the gas pumps at Pop O'Neill's repair shop. "Shall I fill 'er up?"

"Hello, Tommy," said the prim old lady behind the wheel. "No, I don't need any gasoline today. I 'filled 'er up' only last week you know." She nodded her head in agreement with herself as she spoke. "Yes, last week," she affirmed. Young Tommy waited for a minute while she pursed her

lips and gathered her mechanical terminology. "There is something noticeably wrong with my automobile, Tommy. The accelerator pedal sticks badly—but only at intervals, usually as the automobile turns corners."

"I'll take a look at it, Miss Brewster," said Tommy. "Perhaps the floormat is just jammed up there."

As Miss Brewster slid stiffly out from under the wheel, she gathered her long black silk skirt neatly about her black-booted ankles.



"Larry Tate!" she called.
"Larry Tate, come out of
there this minute. I saw you
duck inside."

Tommy stepped on the accelerator several times, but it worked fine. Then he got down, slipped the pedal off and looked at the rod. It worked freely in the hole and nothing was jammed around it.

"That's funny," he remarked.
"It's all right now."

"But I'm sure it sticks sometimes," said Miss Brewster positively.

"If you're sure so am I," grinned Tommy. "The teacher's always right."

Miss Brewster pinched back a fleeting smile, then apparently remembered that she was no longer in the classroom, and the smile broke out again.

"I'll ask Pop to take a look at it," said Tommy. "He'll know what's wrong."

But before Tommy had time to turn around, Larry Tate broke in gruffly. "Need some help here? Hello, Miss Brewster," he added with forced casualness.

"The accelerator pedal sticks,"
(Continued on page 136)



Previewing the

1949 INDIANAPOLIS

Frank Kurtis, race car builder and designer, President of Kurtis-Kraft, discusses



Left. Lou Vollmer, who is known as the magneto man, represents the American Bosch Magneto Company. Lou has been at the track for the past 23 years.

Below. S. A. Silberman, Chief Metallurgist, A. A. A. Contest Board, Magnafluxing a part.



AUTOMOTIVE servicemen are again turning their eyes toward Indianapolis, where racing car builders will put their engineering and design skill to the all important test on May 30—the annual speed classic. Much thought and sweat are in this year's lineup of cars, and a good race is surely in the cards.

The country's top drivers will again pilot the speedsters around the track, with competition from new drivers expected to add thrills to the race. Rex Mays, Duke Nalon, Mauri Rose, Bill Holland, and Bill Taylor are all primed, along with the group of newer Indianapolis drivers such as Mack Hellings, Johnny Mantz, Lee Wallard, Johnny Parsons, Jack McGrath, and others.

Below. The late Cotton Henning who was the Dean of the racing car mechanics putting the finishing touches to the engine that the late Ted Horn drove to fourth position.



WINNERS

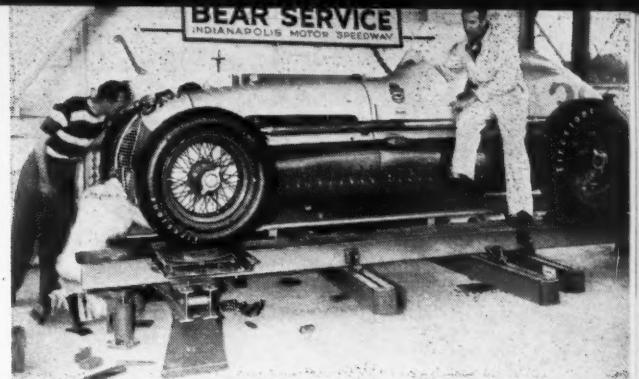
the likely prospects for the championship

An interesting thing to watch this year will be the attempt by several entries to run the entire 500 miles without a refueling stop. There has been much talk about this in the past, but in my experience it has been accomplished only once.

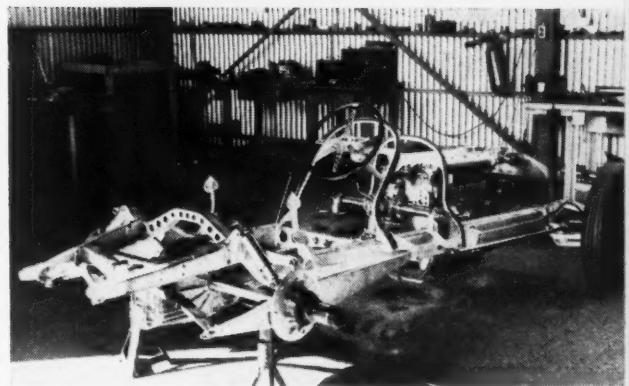
Entrants this year include the two Novi Governor Specials, entered by Louis Welsh, of Novi, Michigan. They have Bud Winfield designed 183 cu in. V-8 overhead cam, supercharged 550 hp engines. These cars, each with Kurtis-Kraft chassis and body, are among the most powerful racing cars in America today. Their engines give them that standing. While most Indianapolis engines are 270 cu in., unblown, the Bud

(Continued on page 114)

Below. Balancing wheels, an important factor on any car, being done on a Stewart Warner Electronic Balancer. This is one of the many manufacturers' services at the track.

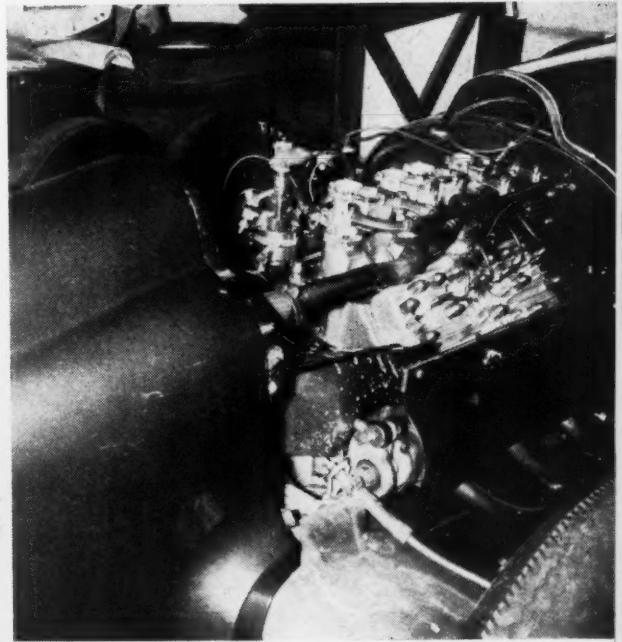


Above. Lou Fageol with his Fageol Twin Coach Special having the front end checked on the Bear Machine.



Above. Lou Moore's third car, the Blue Crown Special Jr. This car was withdrawn from the race last year but since then a larger engine has been installed and the rear suspension redesigned.

Below. One of Granatelli's specially equipped Mercury engines. This car also has front wheel drive.



Face-lifting for

New tools, equipment, and

UP-TO-DATE repair shops can cultivate new trade in simple body and fender work, whether the damaged cars have the new look or the old look, by taking advantage of the new developments in methods and equipment which have taken place in the past few years.

With the new trend in automotive design which leans toward larger body panels, the automotive repairman has an additional problem on his hands. He must cope with larger, more expensive parts if it is necessary to replace a

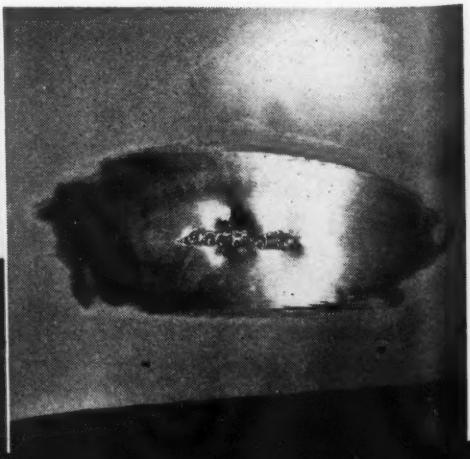
Above. A repairman using a lightweight welder to close a tear in a body panel.

Left. This fender has been cut and scratched in a collision with a metal post. New methods of repairing this type of damage save time and money.

Below. Welder is used to close the cut, eliminating "buckling."

Below. The weld and surrounding area have been ground down.

Illustrations
Courtesy of Ford Motor Co.



and ng for Furrowed Fenders

welding techniques have been developed to make difficult fender repairs easier

fender, and in many cases finds that there is considerably more than a mere "mudguard" built into the unit.

However, manufacturers of automobiles and equipment are cooperating in an effort to develop methods which will make it possible, in many cases, for the mechanic to make effective repairs instead of replacing expensive parts. For example, the Ford Motor Company and the Lincoln Electric Company, of Cleveland, Ohio, have developed a method of making fender repairs with the use of a light-weight welder. In the case of the car shown in the accompanying photographs, the fender has been torn through backing into a metal post. Previous methods of repair were inadequate in that they required either too much time and money, or that the repairs were not lasting. The method shown here, however, is not only quick, but should last the life of the car.

Through modern systems of body and fender repair which have been developed since the war,

a new field has been opened to repair shops—one which may have been impractical or impossible before. For example, an independent repair shop may have found it necessary to turn away valuable fender work because of a lack of equipment. Where they may have been "farming out" this work, or ordering new parts, new equipment may make it possible, for a reasonably small investment, for even a small shop to do this work.

The question which arises is whether these new methods are the answer to the "new look" in fenders. The answer is "Yes—in 95 per cent of the cases." In other words, 95 per cent of the fender damage on the new cars can be handled with simple bumping out repairs or welding as shown here. Therefore, the problem of the big fenders on the new cars becomes much simpler as we see that replacement is seldom necessary, and that repairs are being made easier and more profitable, thanks to cooperation between manufacturers and demand from shopowners.

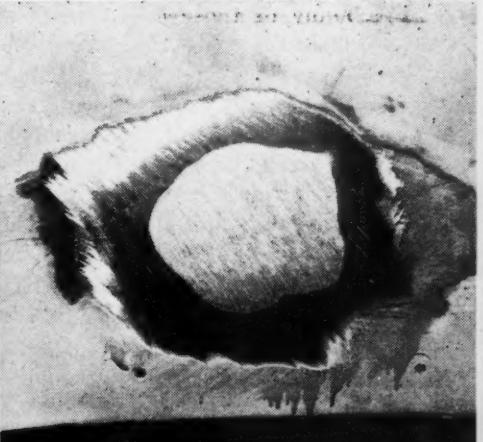
Below. Substituting the carbon torch for electrodes, soldering begins.

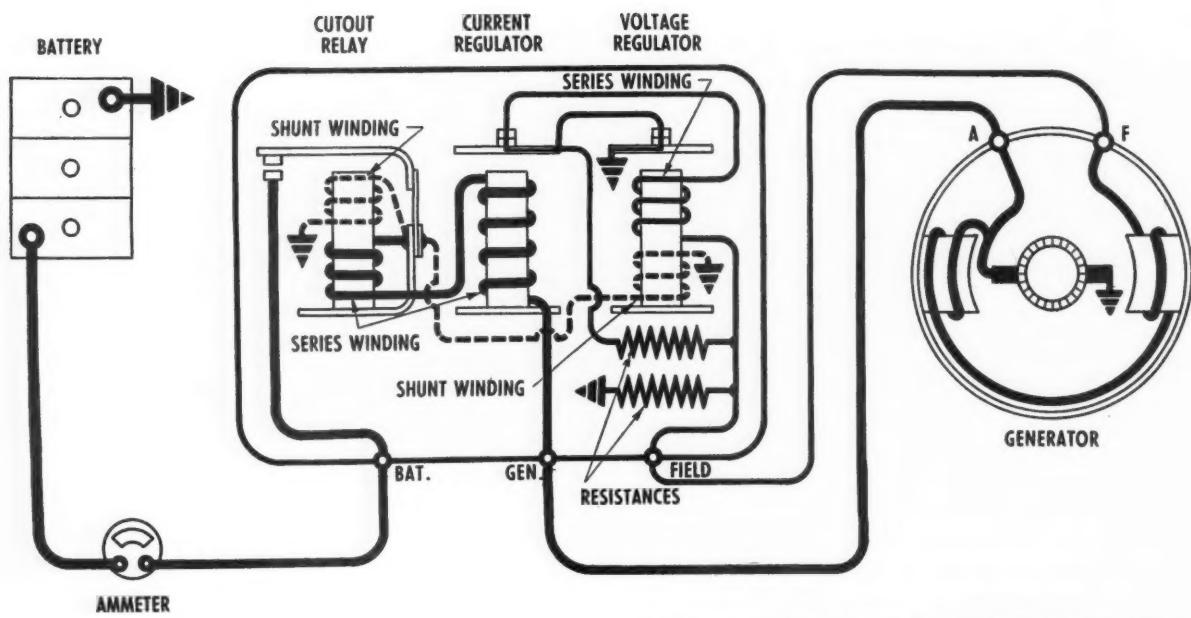


Below. To smooth the solder, a wooden paddle is used with the carbon torch.



Below. Soldering is completed and ground down within a well-restricted area.





Above. A typical generator-regulator-battery wiring diagram showing the leads into the voltage regulator.

Adjusting the Auto-Lite Voltage

EXTENDED periods of fast summer driving will cause serious damage to the battery, generator, or both if the voltage regulator is not functioning correctly. Mechanics often find, after testing the regulator and finding it to be operating improperly, that adjustment of the unit rather than replacement, would be satisfactory. Many of those adjustments are not difficult to make. Specifications are given on page 156.

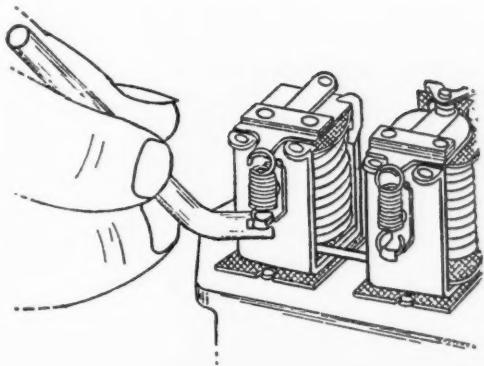
Inside the regulator assembly are three units; the circuit breaker, the current regulator and the voltage regulator. The circuit breaker is designed to break the connection between the battery and generator at a pre-determined low-output speed. The voltage regulator's function is to protect the battery by preventing the generator from exceeding a specified voltage. The current regulator, on the other hand, protects the generator by

Keeping the regulator adjusted helps to prevent injury to the battery or generator

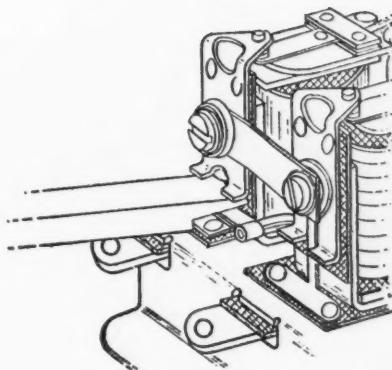
by Arthur H. Nellens, Jr., Assistant Editor

limiting the current output. These three units can be distinguished from each other in the regulator assembly in the following manner: when the engine is shut off, the circuit breaker points should be found open, the voltage and current regulator points closed. The center unit will be the current regulator.

Before making any tests on the regulator, be sure that it is the one which is specified for the car, and that all the wires are properly connected. Also, be sure that the battery is fully charged—
(Continued on page 156)

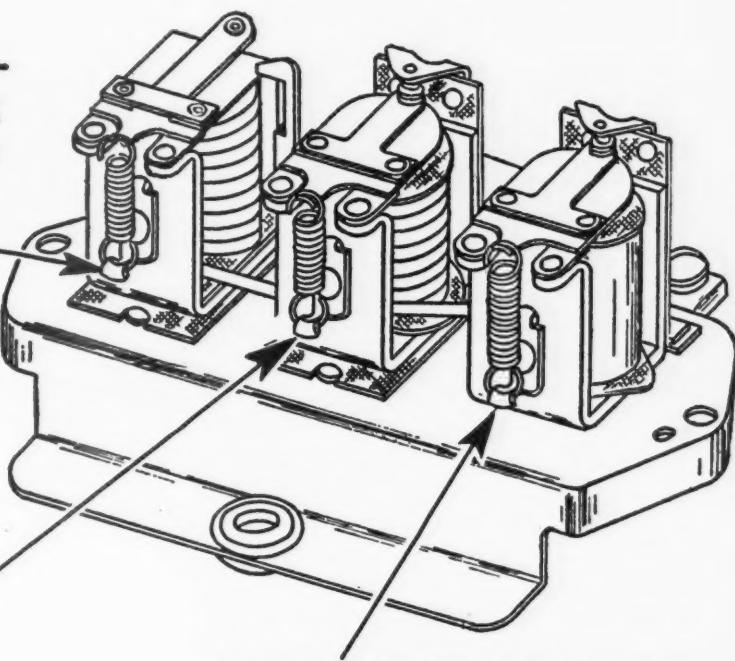


Left. Adjusting the closing voltage of the circuit breaker.



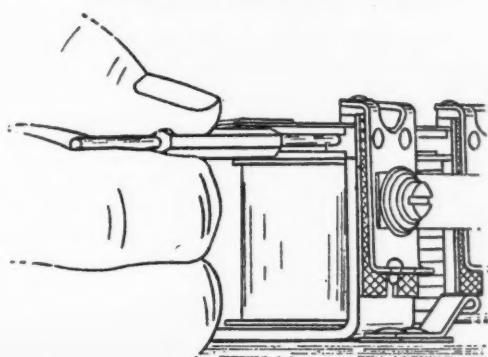
Right. Adjusting the air gap by moving the upper point bracket.

**CIRCUIT BREAKER UNIT
LOWER SPRING BRACKET -
BEND DOWN TO INCREASE
CLOSING VOLTAGE - BEND
UP TO DECREASE
CLOSING VOLTAGE.**



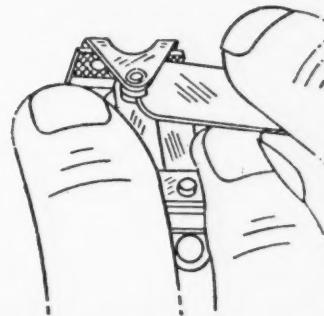
Regulator

**CURRENT LIMITING
REGULATOR UNIT
LOWER SPRING
BRACKET - BEND DOWN
TO INCREASE CURRENT
SETTING BEND UP TO
DECREASE CURRENT SETTING.**



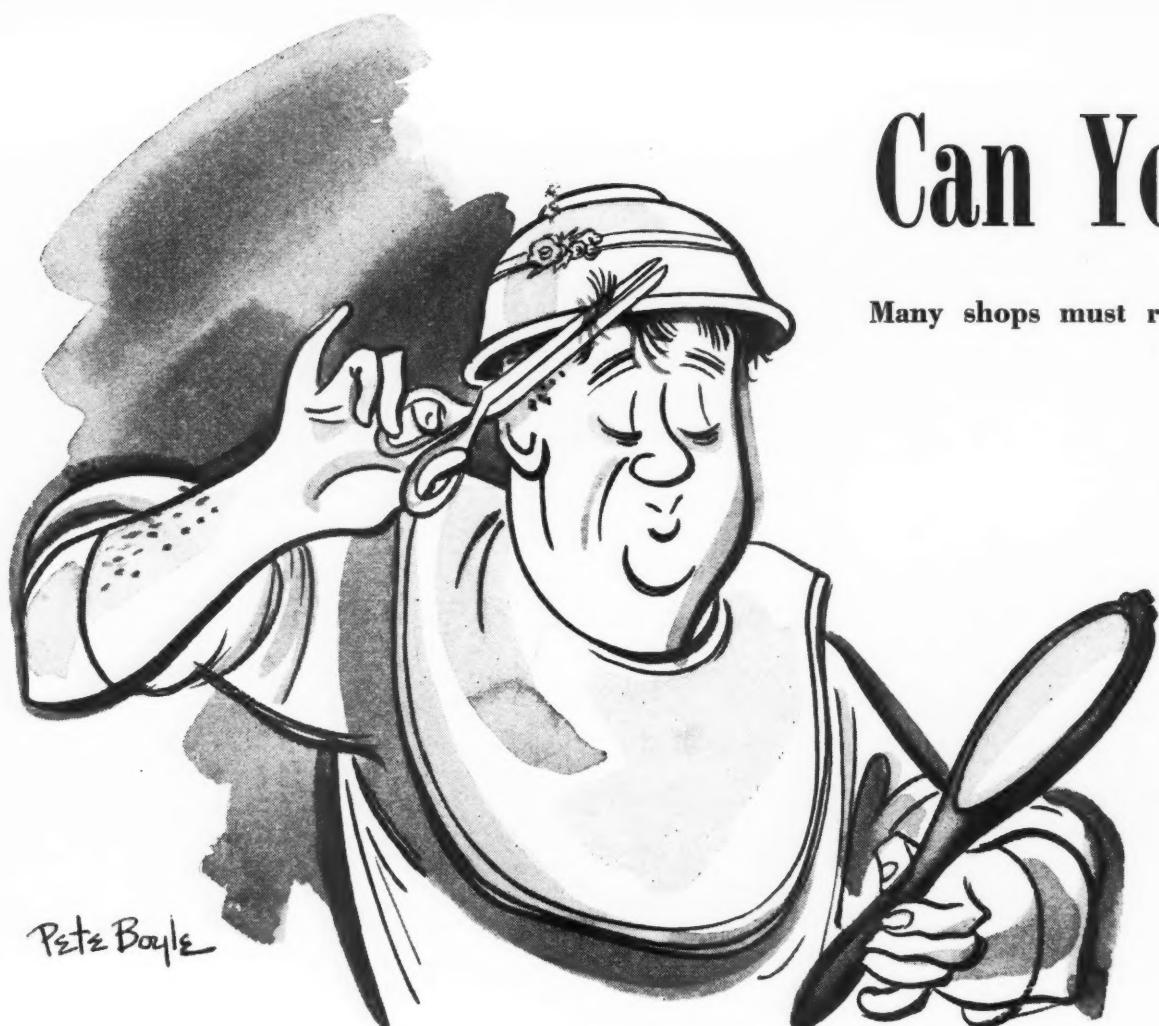
Left. Using a pin gage to check the air gap between the magnet core and the armature.

**Right. Checking the voltage regulator point gap.
Do not apply pressure to the spring supporting the upper point.**



Can You

Many shops must reduce



WITH a buyer's market approaching, the automotive repairman and dealer should concentrate on the one element of operation that will give him the most trouble—his overhead expense. Waiting until the lightning strikes is not wise business policy. Now is the time to analyze your overhead expense. Where can you cut it? That is your problem. And that is a big problem for the repairman or dealer whose overhead is overloaded with fixed expense.

Many do not realize that there are two kinds of overhead. Like "pigs is pigs," overhead to them is overhead, the money they pay out when the rent comes due, or when the light company sends a bill. But overhead has a dual personality. It contains fixed and variable expense, as unlike one another as a gargoyle and Miss America.

Overhead seems less of a burden when sales are in high, because a high sales dollar keeps down the ratio of overhead expense to sales. This is the crux of the problem. The dollars-and-cents size of overhead, which most businessmen consider paramount, is usually secondary as long as volume is high enough to keep down the ratio of overhead expense to sales and assure the desired net profit.

When business shifts into reverse gear, then overhead becomes a headache unless watched carefully. Some repairmen and dealers can cut their overhead expense more readily than others. Why? An analysis of the burden will usually supply the answer. If your fixed expense is high in ratio to variable expense, it will be harder to cut overhead than if your fixed expense is low.

You Cut Your Overhead?

overhead if they want to continue successful operation in the changing market

Fixed expense covers such items as depreciation, insurance, rent, mortgage interest, property taxes. If fixed expense is high, it will remain high regardless of volume. Business may drop off 50 per cent or more, yet, the fixed expense will remain the same. Conversely, volume may double or triple, yet, fixed expense may not increase.

In general, if the ratio of fixed to variable expense runs around 1 to 3, the automotive businessman is in the safety zone. The higher the fixed, the harder it will be to function properly in a buyer's market, the greater the promotional effort required to clear the hurdles.

Since war's end, some repairmen and dealers have increased fixed expense substantially by installing higher priced replacement equipment, additional equipment, by expanding their

shops and showrooms, buying additional business property. We know more than one in this business who has increased fixed expense to two or three times the figure recorded in prewar days. Their shops were operating at capacity and rather than turn down additional business, they bought more equipment, enlarged their establishments. With volume high, they could pay high fixed expense resulting from these investments. In a buyer's market, with volume dropping, or prices decreasing, this fixed charge becomes a burden that will cut net profit unless they take steps to increase volume to maintain satisfactory profits.

Too many businessmen in the past have gone under because they invested too heavily in fixed assets when business looked rosy. When the

market changed they were unable to retrench. One good guide to safety on fixed investment is: *Never let your fixed assets exceed net worth.* Otherwise, your business capital is frozen in slow liquidation, and upkeep expense on the fixed capital will be abnormally high. We have known cases where the ratio of fixed to variable expense ran 6 to 1 without serious effect when sales were in high, but when sales tumbled, a wipe-out of the entire variable expense, all the reduction it was possible to make, could not prevent an operating loss.

In a buyer's market, certain variable expense may be cut, probably phone, light, office expense. The boss can draw less money for his own services. Although overhead expense will tend to maintain a seller's market level for a while, eventually it will drop with the trend. The repairman or car dealer should appraise this possibility and the extent to which he can cut the overhead if the burden threatens his profit. On the other hand, it doesn't pay to use the pruning knife too sharply because he may curtail sales volume. For example, he must grant credit more carefully; this may mean extra office work. He may not collect as readily as he did in a seller's market; this means more collection expense. His bad debt losses may increase, no matter how carefully he supervises credits and collections. These are all variable expenses that may rise instead of fall in a buyer's market.

The automotive businessman with high fixed expense is harder pressed when sales decline than one with low fixed expense. This is illustrated by the following tables covering the operations of two mythical repairmen who do the same volume of business and whose overhead, margin and net profit are the same. Here is Repairman Smith's condensed profit and loss statement for running his shop during the fiscal year, 1948:

(Continued on page 128)

CLEARING HOUSE

FOR SERVICEMEN'S QUERIES

TROUBLE-SHOOTING IN THIS ISSUE

When you run into a job that has you stumped, write Readers' Clearing House. Besides receiving helpful suggestions, you may have the same problem that is baffling someone else. Among the many problems sent in recently are some tough ones found when:

- Oil pressure drops on rebuilt engines
- Noise is heard in truck drive shaft
- Oldsmobile misses on heavy pull
- Kaiser develops electrical trouble
- LaSalle has bearing trouble
- International trucks have miss
- Chevrolet exhaust valves burn
- 1938 DeSoto engine is modified
- Plymouth wanders over the road
- 1940 Buick engine goes in '38 chassis

JACK MONTGOMERY
Technical Editor



Oil Pressure Dropping On Rebuilt Engines

I would like to have your opinion on a couple of things which have been giving me trouble on rebuilt Dodge engines.

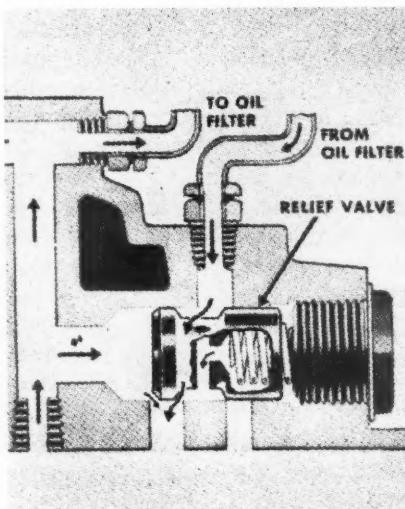
First, I have built one engine which loses oil pressure on acceleration. The engine runs very nicely and as soon as the motor is relieved of the strain of acceleration, the oil pressure goes back to normal.

Second, I have an engine that has run very nicely with the correct amount of oil pressure for the first two or three hundred miles, then very suddenly the oil pressure drops to about 20 lbs. at 30 mph. I have checked this engine with a bearing leak detector and the main and rod bearings leak oil. The camshaft bearings do not leak. I have tried fitting the main and rod bearings up with both the maximum and minimum oil clearance but have had the pressure drop both ways.

These engines have been completely rebuilt with new parts throughout. The crankshaft is reground and the camshaft has new bearings. This trouble does not occur on every job and I am sure there is something I am leaving undone. Coy T. Rice, Rice & Young Auto Machine Shop, Idabel, Oklahoma.

ON the engine that loses oil pressure on acceleration, I would say the trouble is most likely caused by the oil surging past the screen. This condition is sometimes caused by the oil pan being too close to the bottom of the strainer housing. Also, there is the possibility of the pump being at fault. You probably know that if the gasket between the pump cover is too thick, low oil pressure will result.

On the other engine where low oil pressure is present, I would suggest removing the oil release valve



and check it for pitting and wear. Two types of springs are used for the pressure relief valve. I would suggest installing the spring paint-

ed green, this is the heaviest. The other spring, painted red, is lighter than standard.

Ringing Noise Heard In Truck Drive Shaft

We have a 1948 truck that has a ringing noise in the drive shaft. It seems to be more of a vibration. The rear end seems to be adjusted O.K. and we have overhauled the transmission which didn't help any. We put in a whole new drive shaft assembly out of a new truck that was O.K., and while that helps some, the noise was still there. The noise is heard from 10 miles per hour and up either on a pull or coast and seems to get worse after a long drive. The owner says it has always been there but is getting worse. Earl Roberts, Chevrolet Garage, El Dorado Springs, Missouri.

THIS is most likely caused by the clutch. When the springs in the clutch hub become weak or broken, a noise such as you described usually develops.

I would suggest removing the clutch and examine the springs and if any wear is visible, replace the clutch assembly.

I would also check the rear for misalignment.

Valves Burning On Low-Mileage Chevrolet

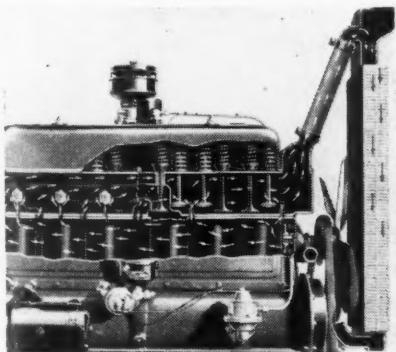
We have been having trouble with a few Chevrolets burning exhaust valves. One car came in with 30,000 miles on it. We found that the compression on number one and six cylinders was lower than the rest. We ground the valves and gave the engine a complete check and found that everything else was O.K. The tune up showed that the fuel pump was O.K. and the carburetor had been adjusted properly.

In about 3,000 miles the customer came back and complained of the engine missing. Upon compression checking it was noted that the number one cylinder had 40 pounds compression, so we again ground the valves. Number six valve showed evidence of large pits on its face, so it was replaced.

After the owner had 10,000 miles on his car, he came in for a tune up, and at that time number one cylinder again had low compression. On again grinding the valves, we couldn't find anything wrong except that number one valve was burned quite badly. The valves were within tolerances in the valve guides.

I feel that we aren't the only ones having this trouble. Some transient customers come in complaining of a miss in the engine. When we tell them that it is due to low compression on one of the cylinders, they tell us that they have time ago. Robert H. Mallory, Mallory Garage, Box 1148, Weed, California.

THERE are several conditions that could be causing the valves to burn, such as hot spots in the



head and lean fuel mixture. I would suggest flushing out the

cylinder block and head. It also would be a good idea to mix a 20% solution of hydrochloric acid, leave it in the block over night. When doing this make sure the radiator hoses are disconnected and the block is plugged up. This solution will remove all the deposits inside the block and head. Afterward use a good rust inhibitor.

I presume that the valve seats were refaced each time. However, better results can be obtained by grinding the valve face angle slightly smaller than the seat angle. This will result in positive initial valve seating. The difference in angles should be $\frac{1}{2}$ degree.

Modifying 1938 Desoto To 1948 Specifications

I own a 1938 Desoto S5, overdrive transmission, $3\frac{3}{8}$ bore x $4\frac{1}{4}$ stroke, 231.1 cu. in. displacement, 650 to 1 comp. ratio. I intend to bore the cylinders to $3\frac{7}{16}$ inches using standard 1946-47-48 Desoto pistons. This would be .0625 oversize over the present pistons. The late Desoto engine is 236.6 cu. in. displacement, same stroke as 1938 Model. Compression ratio on S11 is 6.6 to 1.

I would like to know if you think this would work out O.K. Would it be advisable to plane the present cylinder head and if so, how much? Please give advice as to this changeover, also as to ignition timing and carburetion. E. L. Sunderman, c/o Groening Motor Co., 201 South Main, Hillsboro, Kansas.

I THINK your idea is a good one and should work 100%.

As to your ignition timing and carburetion, I would suggest installing a richer main jet in the carburetor and installing a late model breaker plate in your distributor as this plate will give you more advance.

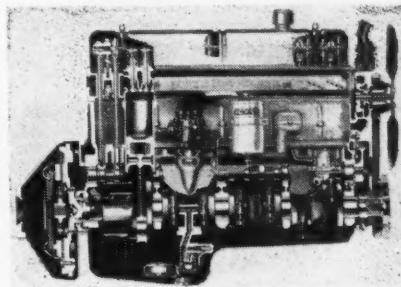
As to planing your cylinderhead—I would suggest no more than .070 in. As for your ignition timing, I would advise setting it on the road to secure best performance.

1940 Buick Installation In 1938 Buick Chassis

I would like to put a 1940 Buick engine into a 1938 Buick 40 Series. What do I have to change over?

Could I use the 1940 flywheel? I would appreciate any information you could give me on how to make this change. E. Cheslo, 3081 W. 105 Street, Cleveland 11, Ohio.

THIS can be done by making the following changes. Change the front motor support plates and fly-



wheel housings. The 1940 clutch and flywheel can be used but it will be necessary to change the throw-out bearing. Install the late bearing on the 1938 throwout holder.

Wandering Plymouth Baffles This Shop

We have a customer who has a 1936 Plymouth on which we have worked and worked but the car still wanders and has a tendency to make quick darts in either direction.

The king pins are free, new front springs and front shackles have been installed, tie rod ends are tight, a new drag link end was installed, new steering gear complete, the front wheel bearings are good, the kick shackle was taken up, we raised the caster from 2 degrees to 5 degrees, rear springs and shackles are good, rear bearings and wheels are tight, there is no play in the rear axle, the car tracks perfectly and all the shocks are good.

We would appreciate any information you might be able to give us. Ralph Molder, Molder's Wheel Alignment Service, Cor. Eureka & Central Streets, Lima, Ohio.

IT CERTAINLY is odd that this condition still exists after all the work that you have done. I would suggest you carefully adjust the steering gear once more and also check the drag link for being bent. Also make sure that the sway bar is attached.

(Continued on page 54)

The
ighter

shaft
has a
it.
ation.
usted
l the
any.
shaft
that
ome,
noise
er and
and
long
s al-
ting
rolet
Mis-

by
ys in
or
de-
the
and
the
for

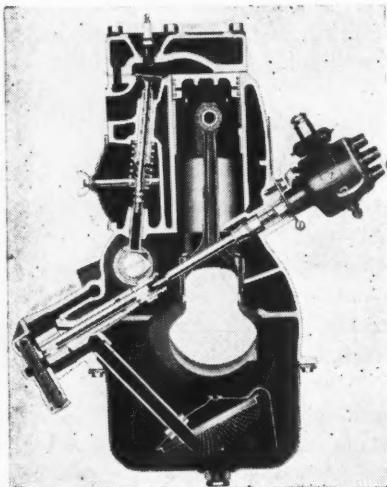
Clearing House . . . Continued from Page 53

Oldsmobile Misses

On a Heavy Pull

We are having trouble with a 1937 Oldsmobile. This car cuts out just as if a spark plug is missing on a hard pull. It runs at other speeds O.K., also idles perfectly. I have ground the valves, installed new rings, new carburetor, and new points. But it still has the miss on a hard pull. Can you give me some suggestions as to what to do. C. B. Norris, Marrowbone Garage, Marrowbone, Kentucky.

I SUGGEST that you carefully check the distributor cap for cracks, also the high tension wires



for short circuits. Also remove the distributor and check the groove in the housing where the three little balls ride for wear. Any wear in this groove or on the bearings would cause the cam angle to change during vacuum advance or retard.

There are special tools and parts on the market for correcting this condition.

Electrical Troubles On Late Model Kaiser

What causes a complete blackout in a current model Kaiser? By this I mean no lights, horn, or ignition. And why does the ammeter burn in half; the brass connection between the discharge and charge posts? Joseph A. Subyak, R. D. No. 2, Wapwallopen, Pennsylvania.

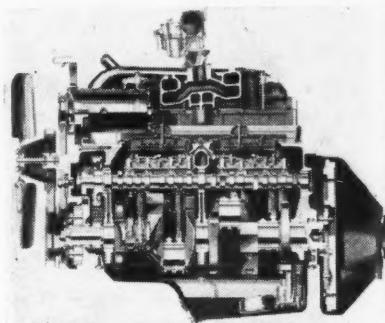
I AM inclined to believe the ammeter is overloaded with accessories. When attaching heater or other accessories a relay should be used, this will eliminate the overload on the ammeter. These cars are equipped with a circuit breaker instead of a fuse and should a short circuit occur, the points on the circuit breaker will open.

Overhauled LaSalle Has Engine Bearing Trouble

A customer of ours recently brought in a 1937 Model 50 LaSalle for an overhaul. The engine was pulled and block rebored to .040. He installed new pistons, rings, clutch plate, pressure plate, hydraulic valve lifters, valves, springs, guides, etc. While the engine was out the crankshaft was also pulled, cleaned, and found to be in perfect condition. The engine was then steam cleaned throughout and re-cleaned before it was put together. The ignition system was gone over completely and all parts replaced that needed replacing. New rod bearings and new main bearings were installed and the engine was put back in.

The car went out, ran for about 250 miles, and the customer was back in with trouble. The pan was dropped and No. 2 rod bearing had gone out. The bearing that came out looked like it had water blisters on it. He installed new rod bearings and the car went out again, but not for long. With 500 miles on it, it came back in, and the rear main bearing was leaking. Off with the pan again and upon pulling the rear main bearing out found that it had worn egg shaped. They then installed another new stud rear main bearing and while it was running in the shop, oil ran out of the back main bearing. Pulled it down again and had shaft checked completely and was found to be perfect all the way through. So he installed another new rear main bearing and he still has the leak. Please tell us what the trouble is. William Emig, Navajo Auto Supply, 225 Kinsley Avenue, Winslow, Arizona.

I NOTE that you do not mention anything about the oil pressure. I would suggest that you remove the oil pan and make an oil pressure test on this engine to determine the amount of leakage.



I would also advise installing a new seal in the rear main bearing. The cause of the bearing failure could come from the steam cleaning. If the passages weren't thoroughly blown out by compressed air, the possibility of dirt and the cleaning mixture might be trapped along the passages.

The recommended procedure for cleaning the drilled oil passages is to remove the oil pump, then the plug at the front end of the crankcase oil header.

International Trucks Have Peculiar Miss

I am working on K6 International trucks, and have had troubles with 2 trucks. They only have 20,000 miles on them and have a miss at high speed or on a hard pull.

Here is what I did. I changed the coil, condenser, and points, tried different points and tension, and tried different plugs. I replaced the fuel pump, blew out the gas line, and installed a different carburetor.

The compression tests 120 in each cylinder. Daniel H. Kessler, Orwin, Penna.

ON your K-6 International trucks that seem to have a peculiar miss on a pick-up, I believe that the trouble might be caused by the head gasket leaking.

I would suggest you remove the head and install a new gasket and when pulling this head down, I would strongly advise your using a torque wrench.

I would also replace the distributor cap and ignition wires.

FACING YOUR WAY



ROBT. A. STRANAHAN, Jr., Vice-President in charge of Sales, Champion Spark Plug Co.



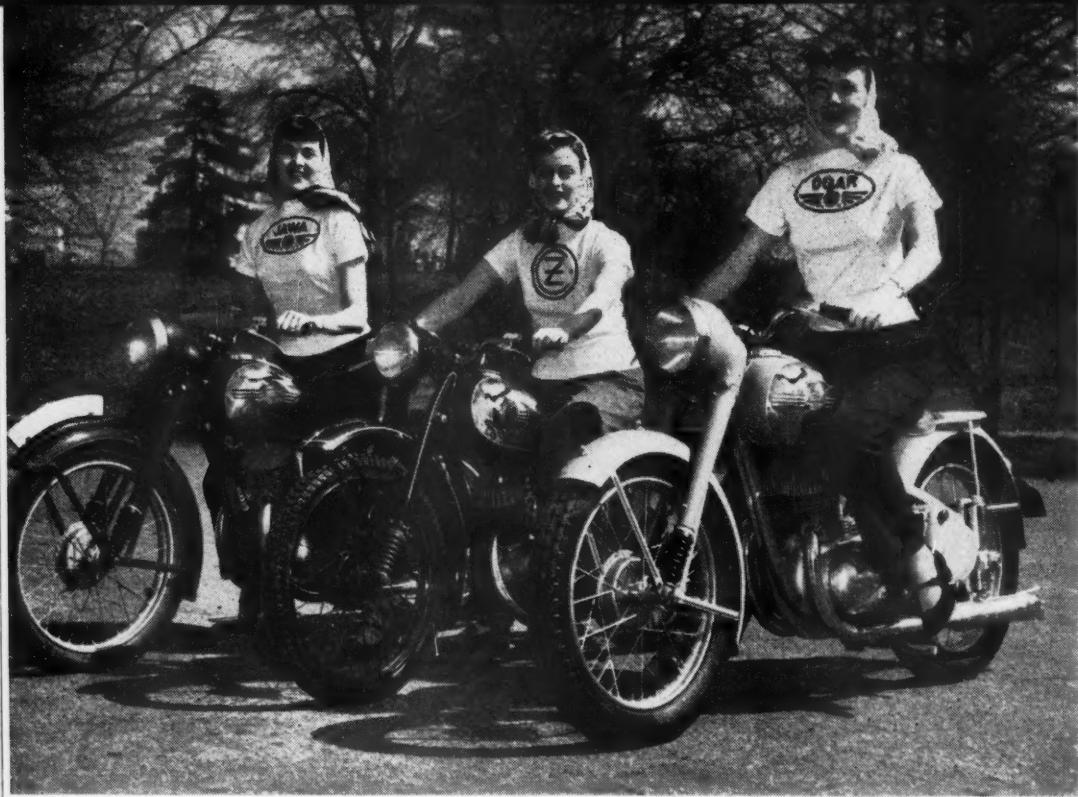
SIR WM. WELSH heads the British Society of Motor Manufacturers and Traders



CHARLES R. CROWDER, Vice-President of Van Norman Co., and President of NSPA



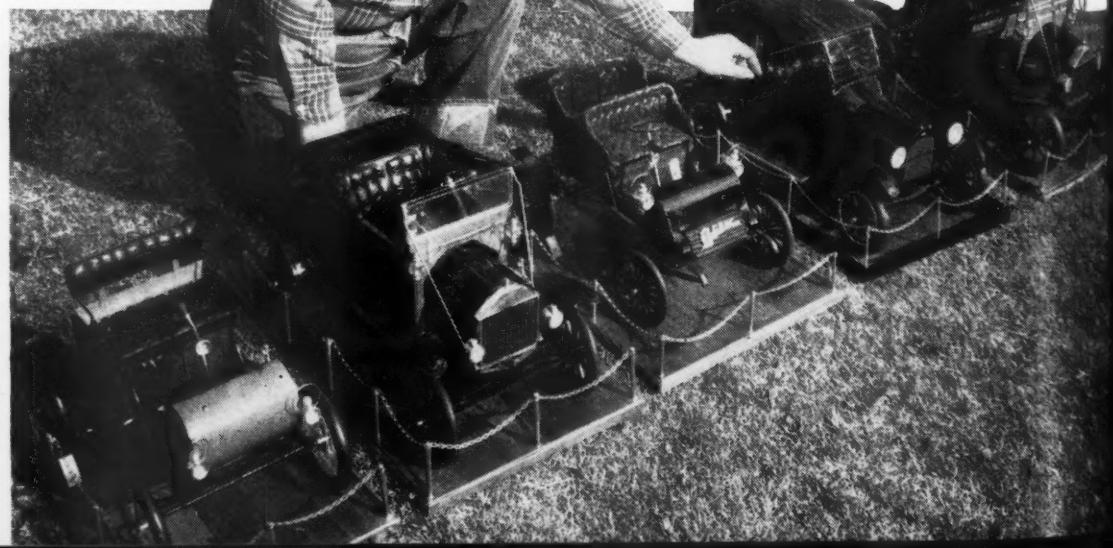
GEO. WEBER, Jr., heads board of directors of Greater St. Louis Automotive Assn.



The "Jawa" motorcycle now has three in its family, since the Jawa Motorcycle Company also handles the "CZ 125" and the "Twin Ogar" as well.

Right. Dick Spere, of Los Angeles, used to pilot his own "hot-rod" until he became bed-ridden with a lung ailment. Now he repairs his friends' cars in his bedroom.

Below. Arthur Salmons of Hynes, Calif., builds these models to exact detail at one-sixth scale. The horns blow, they steer, in fact, the cars do everything but run.



NEWS SCENE

Bob Hope really isn't that husky—it's an empty battery case that he's hefting. The Auto-Lite battery was presented to him upon his arrival in Toledo with his troupe.

Below. The Perfect Circle Corporation's twenty-fourth annual sales conference, held recently in Richmond, Ind., was given an unusual twist when a special edition of the Hagerstown (Ind.) Exponent was passed around.



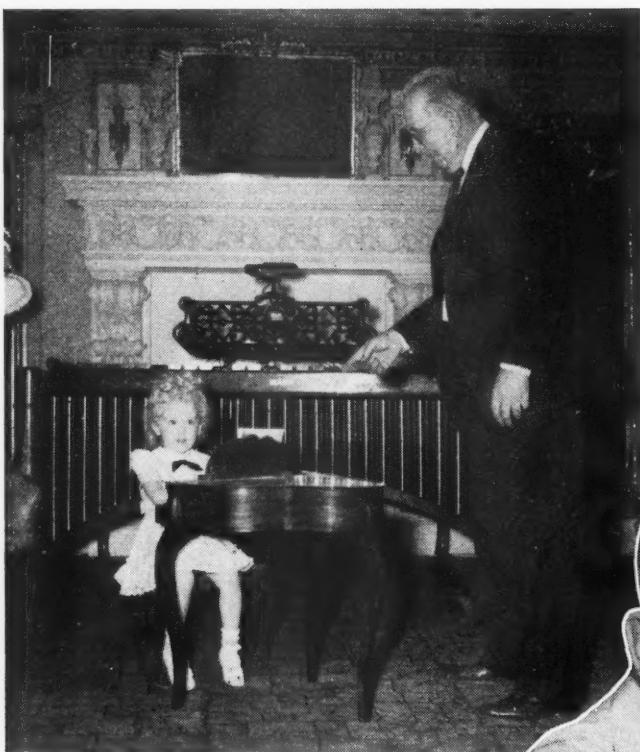
Above. Here's the new Pup coupe, manufactured by the Pup Motor Car Co., Spence, Wis. The car lists for \$595 and features automatic clutch and transmission, hydraulic brakes, and rear engine drive. The wheelbase is 68 inches.



Left. "—And this is the engine." A nomadic Bedouin receives his first lesson in the fundamentals of mechanics. Notice the use of special desert tires on this car, which is used as a taxi.

Beating Bo

by Harold Severson



Betty Ann Cowden is playing one of the toy pianos made from the mahogany veneer of a bomber fuselage. The keys strike aluminum tubes.

C. E. Beck, president of the Obion County Motor Co., of Union City, Tennessee, suddenly found himself all wrapped up in a full sized toy business.

BECAUSE of a bargain sale in more than slightly used two-engine bombers, a Tennessee automobile dealer is engaged in a 1949 version of beating swords into plowshares. He's converting bombers into toy xylophones and pianos. His name is C. E. Beck, and he's president of the Obion County Motor Company, Inc., of Union City, Tennessee.

Last year Beck and his two associates, Carl Timm and James Dippy, snapped up 350 bombers at the unheard of price of \$5 apiece. It looked like a good-sized herd of what many folks called white elephants. But Beck didn't care what they



thought—and neither did his partners. For one thing they found enough gasoline in the plane tanks to pay for the bombers. Then they began dismantling them.

"There were miles of aluminum tubing and thousands of square yards of mahogany veneer," Beck recalls. "But the veneer was covered with a cloth and the tubing looked plumb useless."

Then an inspiration came to him. Recently he had finished a beautiful xylophone made of plate

Bombers into Aluphones

A batch of white elephants and a bundle of bright ideas put this Tennessee Ford dealer in business as a toy manufacturer

Beck watches Walter Brown sawing a bunch of aluminum tubing into the proper lengths for use in Aluphones.

Beck spent nearly six months in completing his own xylophone of plate glass and cardboard rolls.



glass strips and paper tubing. Why not, he asked himself, use the tubing to make xylophones? He found that by cutting the tubes into different lengths, he had a complete octave of sharps and flats. They made a beautiful ringing sound when tapped with wooden hammers. Then he went a step further. He painted each of the aluminum tubes a different color—red, blue, pink, orange, yellow and so forth—to impart a striking rainbow color effect. Then he named it the Aluphone

—“Alu” from “aluminum” and “phone,” of course, from “xylophone.”

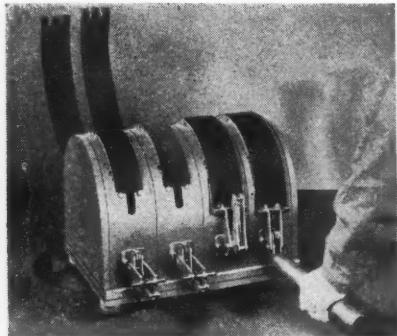
What was back of painting the toy?

“Well,” explains Mr. Beck, “it’s difficult for a pre-school child to remember notes. But he can understand colors. So I made a special music sheet scored with colored dots corresponding to the colors on the tubes. All the youngster has to do is look at the music sheet, strike the tube

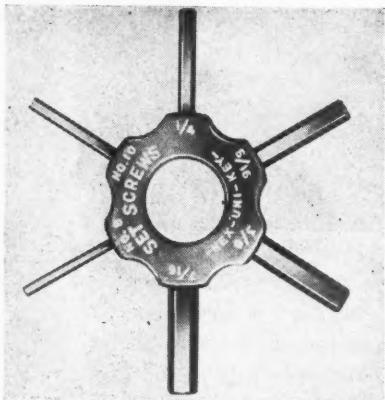
(Continued on page 132)

NEW PRODUCTS SHOW WINDOW

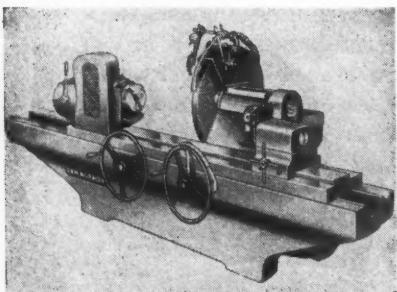
293



294



295



293

Lapeer Manufacturing Company of Lapeer, Michigan, announces a new brake bonding machine. The Knu-Bonder weighs 45 lbs. and occupies a space of 1½ ft. x 1½ ft. on a table. It will bond four shoes simultaneously, and can be supplied for 9, 10, 11 or 12 inch shoes, all of the same size, or in any combination of sizes. Thermostat-controlled electric heaters supply the 400°-500°F heat necessary for perfect bonding. Spring straps, with follow-up springs and special clamps apply high pressures to the entire brake shoe surface.

294

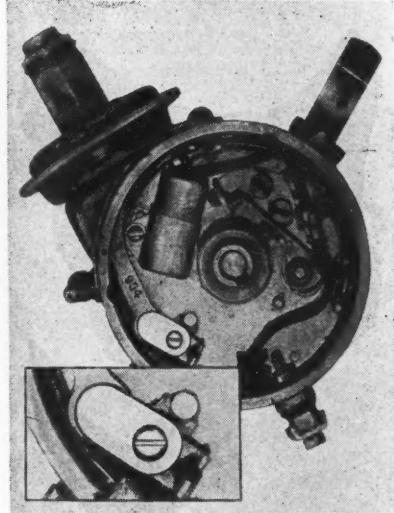
The Eklind Tool and Mfg. Co., Chicago, Ill., is marketing a tool called Hex-Uni-Key, which consists of six sizes of set screw wrenches anchored in a cast holder. It is stated that the wrenches are hardened and heat treated, and that anchoring is done by a special deforming process to prevent any twisting or loosening. The wrench handles all types of socket set or cap screws, in the six most popular sizes.

295

Van Norman Company, Springfield, Mass., is producing a new crankshaft regrinder, No. 448.

This new machine, the manufacturer claims, will regrind shafts

296



297



298



FOR FURTHER INFORMATION
USE COUPON ON PAGE 62

48 inches long, and has an 18 inch swing.

The wheel spindle, as well as the headstock and tailstock spindles, are mounted on precision anti-friction bearings. The wheel is 24 inches in diameter. Standard equipment includes fixtures for grinding mains and pins between centers. Six inch and 8 inch chucks are available to eliminate recentering of shaft.

296

Trindl Products, Ltd., Chicago, Ill., announces a new device which is designed to provide a linkage in the vacuum arm of Delco-Remy distributors (6 and 8 cylinder models) in which the grooves have become worn by the action of the ball bearings against the distributor housing. The new device causes the bearing balls to change position and run on new unworn surfaces of the housing, thus renewing the vacuum arm function to new performance. Called Vacu-Spark Link, it is said to require only a few minutes time to install. It is not necessary to remove either the distributor or breaker plate, nor is it necessary to replace the bearing balls or in any way disturb the factory standard of operation.

297

J. H. Williams & Co., Buffalo, N. Y., announces the addition of a new line of carbon steel adjustable wrenches which are said to

be thinner and lighter than conventional adjustable wrenches of similar capacity. They are made in 4, 6, 8, 10, 12, 15 and 18 inch sizes with maximum capacities from $\frac{1}{2}$ to $2\frac{1}{16}$ inch. These adjustable wrenches have a patented sliding jaw feature. The square shoulders on the shank portion of the sliding jaw are designed to provide positive bearing against working stress.

298

The Raybestos Division of Raybestos-Manhattan, Inc., Bridgeport, Conn., has announced a new lined brake shoe deal to enable dealers to display the product in garages and service stations.

This 20-Set Brake Shoe Deal includes 20 four-shoe sets of Lined Brake Shoes that will service over 90 per cent of the popular passenger cars on the road today. Shoes are available lined with Raybestos PG, Ray-BOND, Wire Molded or Wire Molded for bonding brake lining.

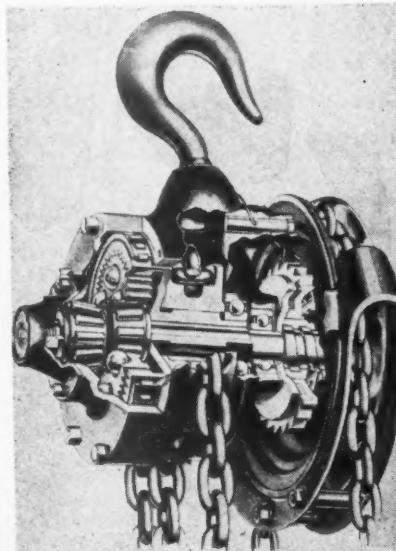
Deal is furnished with wire and sheet steel display rack with a Raybestos identification sign in three colors.

The deal also contains twelve brake shoe chains, a cardboard window display, a specification wall chart and advertising material.

299



300



300

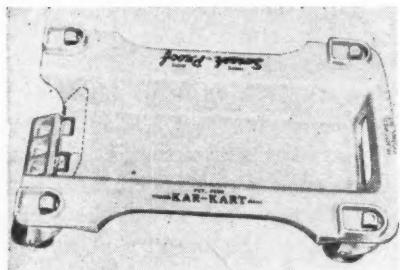
David Round and Son, Cleveland, Ohio, announces a new line of Auto-Bloc light-weight, heavy-duty hoists. The Auto-Bloc employs only two gears and is said to make possible weight savings over standard designs. These gears are a cam-actuated floating inner gear and an outer gear to which the load sheave is rigidly connected.

(Continued on page 62)

New Products Continued from Page 61

301

Hulbert Manufacturing Co., Ashtabula, Ohio, is marketing a new line of wheel dollies which are designed to facilitate moving cars in spots which are too tight



for driving, for moving "crippled" cars, and so forth. Called Kar-Kart, they have 2½-inch caster wheels and are equipped with small ramps which allow the wheels to roll onto the dolly, and then fold up to become a block which prevents rolling off. The manufacturer points out that the Kar-Kart has a special stacking feature which permits compact storage when not in use.

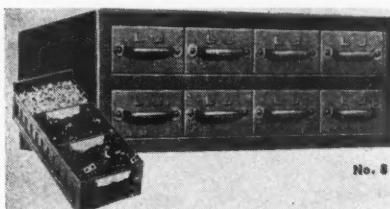
302

James Industries, Skaneateles, N. Y., is marketing an instrument for revealing leaks in the cooling system. Called Tels, it is designed to duplicate normal engine operating pressure at which most leaks become serious. By applying the

proper pressure, as shown on the service chart supplied with the instrument, the mechanic can determine the location of the leak. Or, if there is no leak, he can spot the cause of the overheating. The manufacturer states that the instrument is also useful for testing and blowing out fuel lines, blowing out the carburetor needle valve and many other purposes where low pressure is required.

303

Equipto, Division of Aurora Equipto Company, Aurora, Ill., announces two new drawer cabinets. They were designed for nuts, bolts, washers, screws, electrical parts, and other small pieces. They can be used singly, side-by-side, back-to-back, and stacked on top of each other. Frames are welded into one solid assembly. Drawers have adjustable cross dividers on one inch centers. Lengthwise dividers may be added or removed at will. Label



No. 8

holders are furnished on every drawer and divider. Finished in olive green baked enamel.

MAIL THIS COUPON:

For further information on any of the products mentioned in Motor Age write the code number of the product in the space provided below. Don't forget your name and address.

Frank P. Tighe
MOTOR AGE
Chestnut & 56th Sts., Philadelphia 39, Pa.

Code number of New Products

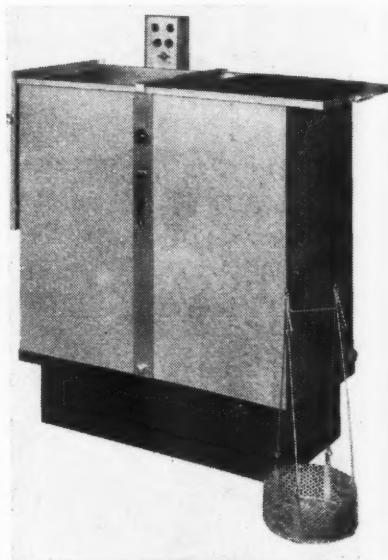
Your Name Your Title

Your Company

Address
(STREET & NO.) (CITY) (ZONE) (STATE)

304

Circo Products Co., Cleveland, Ohio, announces the new Chief twin-tank degreasing machine, an electrically heated, thermostat-



controlled machine. Providing a stainless steel hot vapor tank for automatic vapor degreasing, it measures 18" x 18" x 32½", and has a galvanized steel dip tank of same dimensions for flushing, dipping and soaking parts to be cleaned. A thermostat near the top of the vapor tank controls the vapor height, preventing loss of vapors into the atmosphere. Another thermostat automatically shuts off the heat when the mixture becomes too contaminated.

305

The Elyria Machine Products Co., Elyria, Ohio, announces its utility speed ratchet handle to the market. The manufacturer states that this ratchet, which is made with 3/8 in. drive (with adaptors for 1/4 in. and 1/2 in. sets) can be used where other ratchets are cumbersome for general repair work. It is further stated that

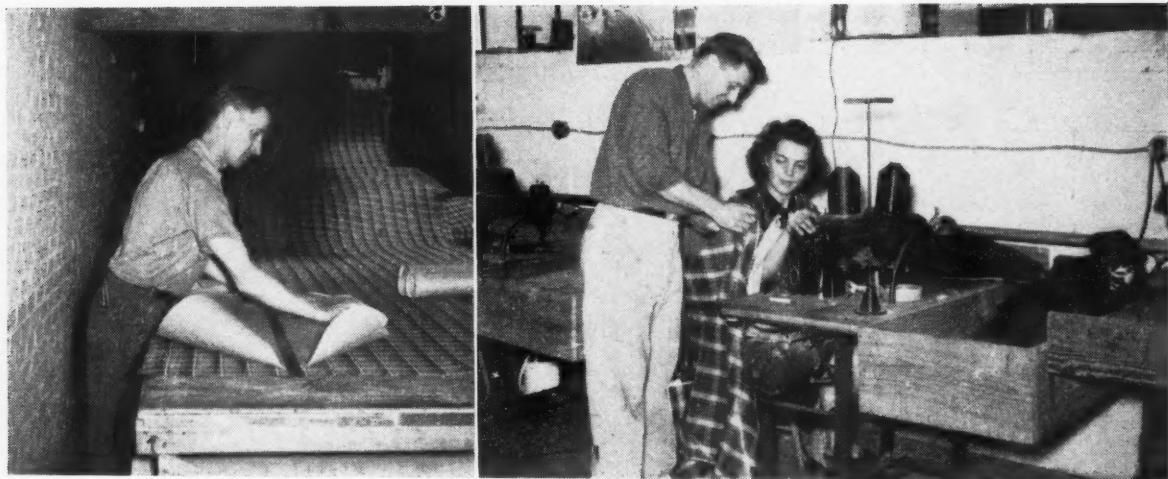


there are no levers necessary for change of direction.

(Continued on page 149)

New Car Registrations by Makes by States*

| STATE AND MONTH | Buick | Cadillac | Chevrolet | Chrysler | Crosley | De Soto | Dodge | Ford | Frazer | Hudson | Kaiser | Lincoln | Mercury | Nash | Oldsmobile | Packard | Plymouth | Pontiac | Studebaker | Willys | All Others | Total | |
|-------------------------|--------|----------|-----------|----------|---------|---------|-------|-------|--------|--------|--------|---------|---------|------|------------|---------|----------|---------|------------|--------|------------|--------|-------|
| Alabama | 184 | 34 | 686 | 64 | 16 | 58 | 108 | 839 | 17 | 79 | 23 | 33 | 182 | 75 | 118 | 53 | 251 | 145 | 114 | 21 | 3 | 3,103 | |
| Feb. 2 Mo. | 368 | 81 | 981 | 150 | 36 | 144 | 285 | 1672 | 38 | 207 | 63 | 87 | 323 | 154 | 260 | 104 | 657 | 284 | 238 | 60 | 12 | 6,184 | |
| Arizona | 75 | 15 | 101 | 18 | 14 | 15 | 49 | 175 | 3 | 66 | 6 | 12 | 35 | 34 | 24 | 26 | 102 | 72 | 87 | 5 | 1 | 935 | |
| Feb. 2 Mos. | 159 | 48 | 177 | 56 | 25 | 47 | 85 | 393 | 9 | 133 | 16 | 21 | 77 | 75 | 53 | 49 | 240 | 138 | 163 | 12 | 1 | 1,977 | |
| Arkansas | 137 | 20 | 272 | 36 | 3 | 38 | 78 | 435 | 36 | 105 | 58 | 24 | 44 | 61 | 80 | 45 | 220 | 70 | 55 | 21 | 17 | 1,855 | |
| Feb. 2 Mos. | 270 | 43 | 598 | 91 | 6 | 78 | 193 | 868 | 80 | 181 | 120 | 46 | 95 | 113 | 150 | 88 | 449 | 170 | 120 | 44 | 28 | 3,831 | |
| California | 1623 | 363 | 2685 | 511 | 68 | 414 | 726 | 3239 | 65 | 846 | 95 | 174 | 679 | 419 | 1046 | 350 | 1813 | 1339 | 1072 | 60 | 72 | 17,659 | |
| Feb. 2 Mos. | 3603 | 743 | 4325 | 1104 | 151 | 1017 | 1776 | 7107 | 137 | 1749 | 260 | 434 | 1324 | 892 | 2195 | 758 | 4429 | 2562 | 2079 | 145 | 161 | 36,950 | |
| Colorado | 247 | 50 | 420 | 102 | 7 | 48 | 122 | 570 | 14 | 260 | 25 | 30 | 113 | 90 | 131 | 73 | 227 | 128 | 97 | 19 | 5 | 2,776 | |
| Feb. 2 Mos. | 501 | 107 | 631 | 215 | 12 | 113 | 277 | 1038 | 29 | 415 | 55 | 78 | 207 | 148 | 234 | 133 | 518 | 221 | 168 | 28 | 5 | 5,133 | |
| Connecticut | 324 | 100 | 346 | 78 | 3 | 43 | 162 | 385 | 9 | 93 | 15 | 38 | 88 | 113 | 193 | 62 | 192 | 202 | 110 | 13 | 18 | 2,587 | |
| Feb. 2 Mos. | 773 | 258 | 645 | 205 | 13 | 167 | 452 | 925 | 18 | 211 | 33 | 79 | 212 | 241 | 454 | 151 | 663 | 421 | 247 | 38 | 49 | 6,255 | |
| Delaware | 73 | 12 | 122 | 16 | 1 | 13 | 35 | 189 | 4 | 15 | 7 | 11 | 39 | 33 | 66 | 50 | 141 | 36 | 158 | 90 | 94 | 1,691 | |
| Feb. 2 Mos. | 152 | 38 | 195 | 36 | 9 | 34 | 128 | 353 | 9 | 43 | 13 | 30 | 66 | 50 | 12 | 34 | 46 | 54 | 85 | 64 | 3 | 1,548 | |
| Dist. of Col. | 174 | 47 | 282 | 48 | 4 | 40 | 125 | 332 | 1 | 50 | 2 | 12 | 34 | 46 | 102 | 234 | 89 | 396 | 161 | 113 | 13 | 16 | 3,556 |
| Feb. 2 Mos. | 372 | 121 | 402 | 116 | 4 | 89 | 351 | 673 | 5 | 144 | 11 | 38 | 106 | 102 | 234 | 89 | 396 | 161 | 113 | 13 | 16 | 3,803 | |
| Florida | 318 | 102 | 368 | 107 | 40 | 78 | 253 | 761 | 31 | 194 | 52 | 119 | 218 | 104 | 145 | 119 | 386 | 123 | 136 | 53 | 14 | 3,721 | |
| Feb. 2 Mos. | 499 | 191 | 767 | 198 | 68 | 156 | 425 | 1543 | 58 | 329 | 95 | 222 | 388 | 184 | 247 | 184 | 734 | 221 | 243 | 93 | 29 | 6,870 | |
| Georgia | 343 | 61 | 748 | 118 | 27 | 114 | 242 | 1152 | 57 | 149 | 131 | 79 | 327 | 110 | 187 | 98 | 466 | 399 | 199 | 40 | 11 | 5,058 | |
| Feb. 2 Mos. | 950 | 155 | 1437 | 343 | 61 | 290 | 789 | 2947 | 145 | 494 | 332 | 228 | 683 | 293 | 468 | 239 | 1298 | 977 | 487 | 109 | 29 | 12,752 | |
| Idaho | 97 | 24 | 116 | 46 | 2 | 38 | 66 | 220 | 17 | 80 | 22 | 18 | 35 | 53 | 29 | 152 | 50 | 74 | 9 | 1 | 1,187 | | |
| Feb. 2 Mos. | 184 | 34 | 268 | 79 | 2 | 69 | 117 | 381 | 46 | 139 | 43 | 33 | 73 | 65 | 81 | 56 | 269 | 128 | 135 | 14 | 5 | 2,221 | |
| Illinois | 1684 | 457 | 1788 | 431 | 59 | 406 | 1177 | 3119 | 146 | 794 | 216 | 196 | 520 | 824 | 376 | 1870 | 618 | 480 | 68 | 288 | 16,007 | | |
| Feb. 2 Mos. | 3504 | 1046 | 4936 | 1184 | 137 | 1092 | 2859 | 7120 | 445 | 1672 | 607 | 551 | 1372 | 1160 | 1538 | 1012 | 4419 | 1944 | 1175 | 173 | 649 | 38,595 | |
| Indiana | 572 | 109 | 1111 | 133 | 38 | 100 | 250 | 1243 | 51 | 319 | 80 | 51 | 195 | 204 | 204 | 375 | 158 | 429 | 315 | 408 | 45 | 6,207 | |
| Feb. 2 Mos. | 1298 | 242 | 1703 | 364 | 79 | 300 | 802 | 2684 | 113 | 733 | 174 | 121 | 393 | 391 | 795 | 354 | 1366 | 520 | 688 | 102 | 24 | 13,228 | |
| Iowa | 478 | 80 | 1058 | 113 | 16 | 71 | 224 | 1652 | 59 | 227 | 93 | 39 | 222 | 151 | 262 | 142 | 391 | 267 | 203 | 14 | 23 | 5,785 | |
| Feb. 2 Mos. | 867 | 147 | 1731 | 272 | 38 | 183 | 526 | 2968 | 115 | 483 | 228 | 92 | 389 | 285 | 444 | 228 | 1106 | 424 | 374 | 32 | 57 | 10,989 | |
| Kansas | 187 | 28 | 338 | 77 | 16 | 60 | 190 | 488 | 28 | 91 | 43 | 42 | 97 | 74 | 129 | 49 | 316 | 104 | 74 | 8 | 3 | 2,443 | |
| Feb. 2 Mos. | 404 | 64 | 687 | 193 | 59 | 140 | 353 | 1025 | 79 | 236 | 106 | 89 | 194 | 165 | 261 | 116 | 618 | 222 | 148 | 17 | 10 | 5,188 | |
| Kentucky | 343 | 52 | 743 | 92 | 13 | 48 | 138 | 945 | 31 | 162 | 40 | 29 | 138 | 114 | 207 | 97 | 260 | 171 | 144 | 51 | 12 | 3,830 | |
| Feb. 2 Mos. | 623 | 93 | 1093 | 216 | 29 | 117 | 389 | 1637 | 58 | 308 | 94 | 63 | 226 | 161 | 392 | 155 | 708 | 253 | 257 | 85 | 21 | 6,978 | |
| Louisiana | 251 | 52 | 608 | 61 | 16 | 41 | 109 | 825 | 28 | 119 | 44 | 33 | 124 | 117 | 130 | 63 | 255 | 175 | 105 | 22 | 11 | 3,189 | |
| Feb. 2 Mos. | 536 | 114 | 932 | 146 | 36 | 111 | 345 | 1818 | 58 | 298 | 119 | 91 | 283 | 210 | 259 | 131 | 613 | 285 | 262 | 64 | 22 | 6,733 | |
| Maine | 113 | 24 | 226 | 24 | 5 | 16 | 107 | 215 | 11 | 48 | 15 | 13 | 31 | 24 | 87 | 27 | 130 | 81 | 51 | 12 | 3 | 1,263 | |
| Feb. 2 Mos. | 239 | 61 | 457 | 71 | 13 | 70 | 225 | 474 | 18 | 123 | 39 | 28 | 28 | 71 | 72 | 163 | 62 | 362 | 175 | 105 | 24 | 6 | 2,858 |
| Maryland | 365 | 61 | 798 | 91 | 15 | 67 | 119 | 698 | 13 | 152 | 32 | 40 | 85 | 177 | 248 | 73 | 311 | 222 | 165 | 15 | 6 | 3,693 | |
| Feb. 2 Mos. | 760 | 150 | 1208 | 223 | 35 | 193 | 492 | 1481 | 30 | 359 | 58 | 87 | 213 | 227 | 479 | 175 | 1101 | 383 | 312 | 45 | 16 | 8,027 | |
| Massachusetts | 906 | 176 | 997 | 247 | 41 | 219 | 488 | 1316 | 21 | 207 | 45 | 82 | 272 | 272 | 478 | 176 | 521 | 674 | 327 | 51 | 21 | 7,865 | |
| Feb. 2 Mos. | 1737 | 377 | 1698 | 504 | 66 | 400 | 1149 | 2479 | 43 | 418 | 93 | 146 | 490 | 555 | 1299 | 310 | 1564 | 1005 | 579 | 73 | 67 | 15,142 | |
| Michigan | 2034 | 573 | 4371 | 292 | 45 | 313 | 451 | 5086 | 90 | 570 | 117 | 117 | 633 | 538 | 1489 | 297 | 695 | 1503 | 427 | 65 | 24 | 19,727 | |
| Feb. 2 Mos. | 4392 | 1257 | 5981 | 702 | 80 | 673 | 1647 | 10300 | 173 | 1264 | 243 | 305 | 1328 | 1091 | 2647 | 608 | 2930 | 1839 | 812 | 144 | 58 | 34,747 | |
| Minnesota | 443 | 98 | 919 | 118 | 4 | 70 | 265 | 1115 | 49 | 195 | 60 | 40 | 132 | 180 | 287 | 123 | 463 | 217 | 284 | 18 | 4 | 5,082 | |
| Feb. 2 Mos. | 882 | 210 | 1666 | 332 | 10 | 184 | 604 | 2329 | 119 | 401 | 159 | 91 | 260 | 379 | 544 | 237 | 1302 | 482 | 507 | 49 | 7 | 10,754 | |
| Mississippi | 233 | 42 | 545 | 71 | 11 | 36 | 94 | 626 | 26 | 100 | 28 | 33 | 112 | 82 | 102 | 59 | 258 | 151 | 90 | 28 | 10 | 2,726 | |
| Feb. 2 Mos. | 439 | 90 | 866 | 145 | 27 | 103 | 226 | 1225 | 31 | 209 | 65 | 75 | 194 | 144 | 180 | 103 | 518 | 255 | 169 | 54 | 21 | 5,139 | |
| Missouri | 461 | 108 | 1306 | 131 | 25 | 144 | 344 | 1328 | 30 | 164 | 45 | 50 | 174 | 117 | 322 | 110 | 607 | 308 | 161 | 25 | 14 | 5,974 | |
| Feb. 2 Mos. | 1033 | 247 | 2338 | 334 | 56 | 305 | 833 | 2828 | 73 | 345 | 129 | 113 | 351 | 302 | 617 | 235 | 1403 | 600 | 363 | 50 | 29 | 12,584 | |
| Montana | 110 | 22 | 198 | 33 | 4 | 22 | 90 | 282 | 18 | 73 | 18 | 19 | 51 | 35 | 42 | 97 | 50 | 83 | 11 | 4 | 1,321 | | |
| Feb. 2 Mos. | 216 | 54 | 441 | 86 | 6 | 60 | 204 | 637 | 50 | 200 | 50 | 37 | 134 | 102 | 123 | 94 | 282 | 141 | 311 | 94 | 14 | 4,290 | |
| Nebraska | 246 | 34 | 549 | 83 | 8 | 24 | 127 | 757 | 31 | 75 | 34 | 26 | 97 | 67 | 121 | 49 | 311 | 160 | 221 | 27 | 15 | 5,844 | |
| Feb. 2 Mos. | 459 | 17 | 891 | 205 | 17 | 80 | 280 | 1541 | 69 | 154 | 85 | 58 | 187 | 123 | 242 | 97 | 755 | 261 | 221 | 27 | 15 | 5,844 | |
| Nevada | 15 | 10 | 22 | 7 | 5 | 7 | 35 | 1 | 7 | 3 | 7 | 9 | 5 | 15 | 2 | 22 | 14 | 14 | 1 | 201 | 666 | | |
| Feb. 2 Mos. | 47 | 13 | 82 | 28 | 1 | 18 | 21 | 111 | 5 | 33 | 6 | 19 | 27 | 11 | 34 | 17 | 91 | 48 | 53 | 2 | 666 | | |
| New Hampshire | 44 | 14 | 61 | 13 | 1 | 13 | 27 | 91 | 3 | 13 | 1 | 3 | 8 | 13 | 33 | 10 | 51 | 21 | 23 | 3 | 4,450 | | |
| Feb. 2 Mos. | 115 | 34 | 164 | 38 | 5 | 36 | 106 | 251 | 6 | 41 | 14 | 10 | 35 | 35 | 71 | 30 | 148 | 61 | 46 | 13 | 4,1263 | | |
| New Jersey | 1310 | 278 | 788 | 393 | 60 | 283 | 858 | 1460 | 29 | 426 | 53 | 122 | 334 | 318 | 774 | 255 | 1065 | 588 | 433 | 75 | 37 | 9,939 | |
| Feb. 2 Mos. | 2518 | 611 | 1988 | 843 | 102 | 626 | 1764 | 2953 | 63 | 850 | 115 | 244 | 671 | 318 | 1287 | 526 | 2410 | 1370 | 744 | 134 | 65 | 20,467 | |
| New Mexico | 87</td | | | | | | | | | | | | | | | | | | | | | | |



Tracing off the pattern on the fabric. Patterns are filed for every make and model of car.

Patterns are cut and sewed, using colorful piping for the trimming around the seams.

Slip Covers a profitable accessory

How one company uses to good advantage the present large demand for custom made covers for seat, door and wall upholstery



Customers choose their combinations of colors by seeing the completed job on other cars.

ONE of the many profitable specialties connected with the automobile business is seat covers, and one company successfully engaged in this line is the Pomerantz Garage, of Chester, Pa. Among the members of this organization who are responsible for its success is Charlie Zaleski, the manager. Charlie claims that the Pomerantz garage has built up its slip cover business through extensive advertising. Ads in the local newspapers, direct mail, spot an-

nouncements on the radio, and personal contact have all contributed to a thriving business.

The Pomerantz garage goes in for daily newspaper advertising. Each ad illustrates a different make of car and gives the price range of the seat covers.

Once a year a registration list is purchased of car owners living within a 20 mile radius of the garage, and direct mail pieces are addressed to them twice a year. The direct mail pieces are designed to show car owners the advantages of seat covers and wall covers.

They also have spots on the radio. These are
(Continued on page 120)



Left. The block is submitted to a short shot of high amperage, thus magnetizing it. Powder is applied with a gun which has a built-in light bulb for illumination of work.



Above. Application of the magnetic powder. All cracks become apparent as the powder is applied.

Below. The magnetic powder indicates a crack in the cylinder bore and cracks in the center main bearing.



Putting the Fingers on CRACKS

A new method of using magnetic powder makes block inspection easier

WHEN a mechanic installs a rebuilt engine in a car, he is confident that that engine has a block and head (or heads) which are free of cracks. Engine rebuilders cannot afford to miss defects, and modern methods of block inspection are helping engine rebuilders to improve on the remarkable record of efficiency which they have already established in this field.

One of these modern methods, the Magnaflux system, is now used by a large rebuilder in Brooklyn, Precision Engines, Inc. Before the introduction of inspection with Magnaflux, two methods were used for testing blocks, visual inspection and pressure testing.

With visual inspection the average inspector examined about one block every ten minutes and missed from 2 per cent to 20 per cent of all cracks. Considering that practically every third block has a crack, the missing of even 2 per cent can become a costly item. Furthermore, there are very few inspectors who will consistently find all but 2 per cent of the cracks.

The pressure test requires the blocking off of all water-passages and careful examination made for any leaks after the pressure has been applied. This test is usually performed by means of dummy heads bolted to the block as well as con-

(Continued on page 144)



MOTOR AGE FLAT RATE AND SERVICE MANUAL DEPARTMENT



Here's the story on what to do and how much to charge for repairing and freeing up the mechanism for adjusting front seat position

Andrew D. Grey
Editor, Motor Age Flat Rate and Service Manual

Finding Money Under the Seat

MOST men deem it a favor to be able to do something for the womenfolk. But when the opportunity to render a service to our women is also an opportunity to make some money for the shop, then it is doubly pleasant to render them a service.

One of the jobs which is overlooked more than perhaps any other in the average repair shop is the job of making the front seat of the family car slide back and forth readily.

When Dad drives the car it is a simple matter for him to slide the seat back. He simply braces his feet against the floor boards, lifts up the seat latch and pushes. However, when the Missus drives the car the opposite condition exists. It is necessary for her to slide the seat forward, a much more difficult proposition than sliding it back in many older cars.

The front seat adjusting mechanism was designed and built to operate freely. However, in the course of time, dust accumulates in an amazing quantity around the operating latch mechanism of the front seat, which makes it necessary to shove very hard to move the seat in either direction. This condition can be corrected, and on a Flat Rate basis, as a specialty job. Charge the customer \$9.00 labor. There is little if any material required. Naturally, there will be some variation between the different makes and models as to the time required. However, the average of three hours will be ample for most cars.

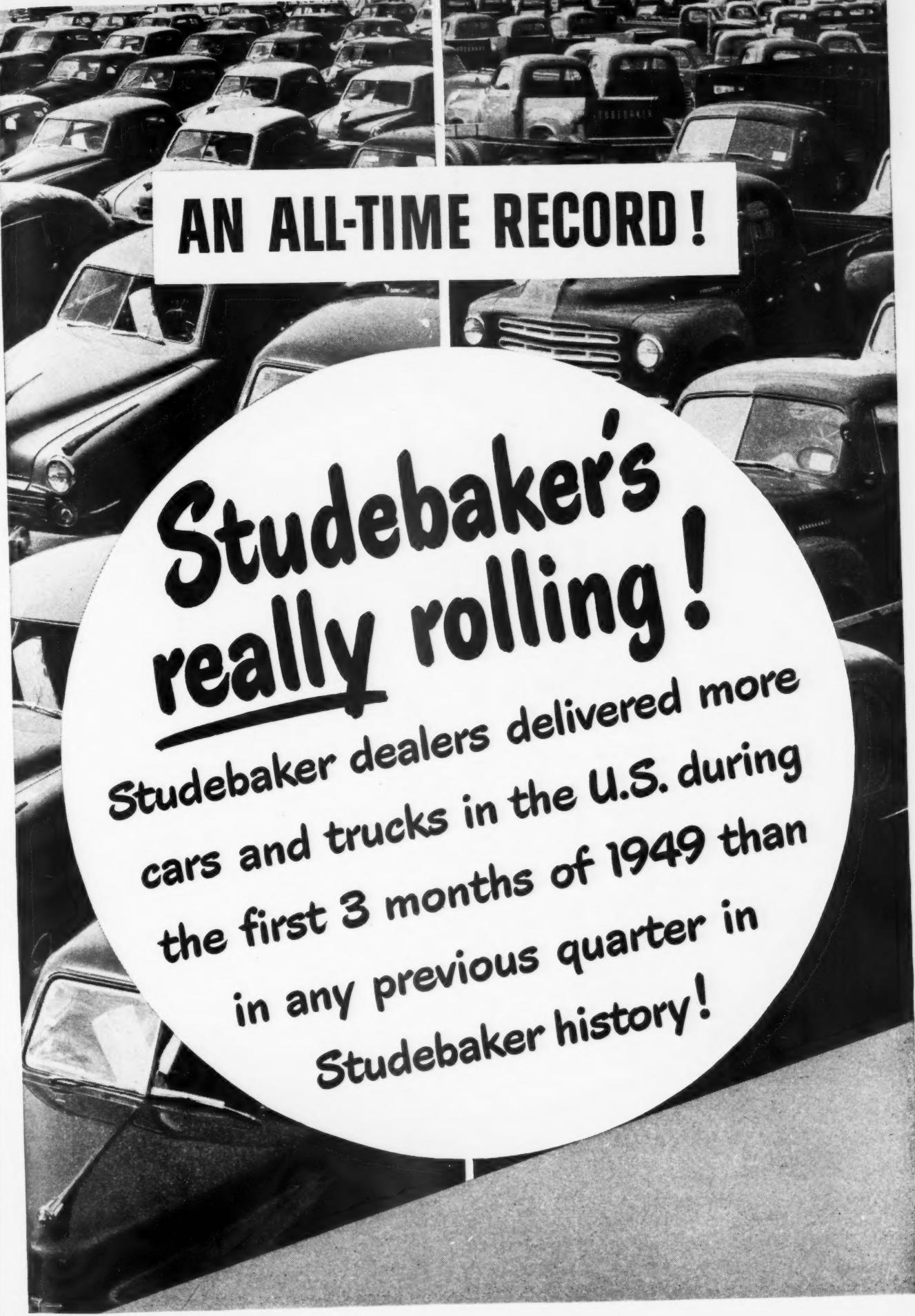
Prices shown here do *not* apply to hydraulically operated power cylinders.

Here's what to do: First, a caution: be absolutely certain that the mechanic working on the car has clean overalls and keeps his hands perfectly clean since he will be working with the upholstery of the car and any dirt on the upholstery will be noticed immediately by the customer. This cannot be stressed too heavily. Cleanliness is vital.

Remove the seat attaching channel from the flooring and lift the entire seat, including the control mechanism, out of the car.

Place the seat upside down on a work bench which has been covered with clean covers or clean newspapers. Disassemble the latching mechanism and remove all burrs. Straighten the latch rod if it happens to be bent, and most of them are. Thoroughly clean out the rails and lubricate with graphite grease or lubriplate. Use a very small quantity of lubricant since large quantities of exposed oil or grease simply attracts dust and dirt. The mechanic should immediately wash his hands after applying lubricant. Reassemble the control mechanism and replace the seat in the car bolting it down firmly.

After installing in the car, test the seat for freedom of motion. If the seat still does not slide freely, it may be necessary to shim one of the four corners in order to keep the seat rails in an exactly parallel position.

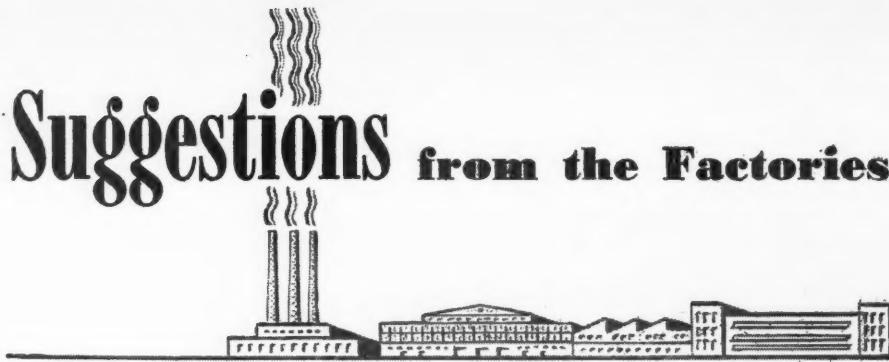


AN ALL-TIME RECORD !

Studebaker's
really rolling !

Studebaker dealers delivered more
cars and trucks in the U.S. during
the first 3 months of 1949 than
in any previous quarter in
Studebaker history !

Service Suggestions from the Factories



Pontiac Hydramatic Clutch Drive Plate Installation

Heretofore, the factory recommended that the clutch drive plates should be installed uniformly, that is, with the small diameter cork lining and the larger diameter fiber lining toward the clutch piston, and the remaining plates to be installed in the same manner. This has been found unnecessary as the plates may be installed either way. It is still very necessary, however, to remember to alternate a steel driven plate with each drive-plate.

Oil Pump Blow-Off Noise 1948-49 "600" Series Nash

A noise in the oil pump of 1948-1949 "600" Series Nash cars, usually described as a swishing or gurgling sound, is now attributed to a broken oil seal between the stem of the oil pump body and the hole in the cylinder block.

To be assured of a positive seal at this point at all times, a new oil pump to cylinder block gasket has been designed which provides a round hole in the oil inlet side of the gasket, and replaces the slotted type formerly used on this series.

Preventing Vapor Lock In K-F Fuel Pump

During the coming hot weather driving some Kaisers and Frazers will be subjected to extreme operating conditions causing high engine temperatures, and these conditions may sometimes cause a vapor lock in the fuel pump.

To prevent, or to remedy such a condition should it arise, a simple solution has been devised which provides sufficient cooling air to the fuel pump.

A horizontal cut in the lower right hand side of the radiator shroud, approximately 7 in. above the bottom edge and extending 3 in. away from the edge of the radiator core will allow this 7 in. x 3 in. area to be bent in toward the pump.

Drill a 1/16 in. hole at the end of each cut to prevent running cracks in the shroud. By using this flap as a baffle, a blast of cold air is thus directed through this opening on to the pump, and thus will provide sufficient cooling to prevent or remedy vapor lock. This operation can be done without removing radiator.

Camber Adjustment on Studebaker 6G, 7G, 14A, 15A

Where 6G or 7G Champions and 14A or 15A Commanders are operated under adverse conditions in which the weight distribution of the load carried is abnormally unequal, or where the car is generally operated over roads having high crowns, it is advisable to adjust the camber of the left front wheel $\frac{1}{2}$ degree greater than that of the right front wheel, thus compensating for the unequal load distribution or abnormal road crowns. This adjustment will contribute greatly toward reduction of tire wear directly responsible from the camber setting in these two types of operation.

It is important to remember that this adjustment of the camber of the left front wheel in excess of that of the right front wheel should only be made when the camber of the right front wheel is within specifications of $\frac{1}{2}^\circ \pm \frac{1}{4}^\circ$, which is the correct limits.

For example, if the correct adjustment of the right front wheel

results in a camber of $\frac{1}{4}$ degree, then it will be possible to set the camber of the left front wheel to $\frac{3}{4}$ degree, which is $\frac{1}{2}$ degree greater.

Ignition Coil Wiring Check on Pontiac

The primary wiring terminals on Pontiac coils are marked plus (+) and minus (-). The ignition switch wire is connected to the plus (+) terminal and the distributor to coil wire is connected to the negative (-) terminal.

Some cars have been assembled with these above mentioned primary wires connected to the coil in reverse order. This condition adds the resistance of the primary wiring to the secondary, and thus, weakens the total output of the coil, but does not damage the coil.

When cars are found that are wired in the reverse order, the primary wires should be disconnected and installed on correct terminals, but it is not necessary to replace the coil.

To Prevent Stalling on Cadillac Hydramatic

It is recommended that when setting the slow idle speed on all Hydramatic equipped 1941, 1942, 1946, and 1947 Series Cadillac cars, that the adjustment be made with the selector lever in drive position and the R.P.M. set at 375 and the engine on slow idle at operating temperature. It has been found that the idle speed drops about 30 to 50 R.P.M. when moved from the neutral to the drive position, so that if the R.P.M. was set at 375 in neutral, the drop in R.P.M. when moving selector to drive position increases the tendency to stall.

YOU NEED *Tested Quality* FOR
AMERICA'S FINEST IGNITION SERVICE



Operator is making final inspection of Distributor to insure automatic advance is within tolerance specified. She is also checking for shorts in primary circuit.



SUCCESSFUL service men will tell you it is repeat business that pays the profit. It costs real money to get customers. You can hold them for continued volume and profits only when you deliver full satisfaction . . . that's why it is so vital you combine your honest workmanship with the tested quality of Auto-Lite original factory parts.

The importance of this quality is proved by this fact: More than half of America's car makers specify Auto-Lite. For information, write to

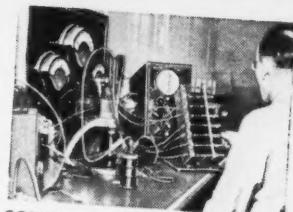
THE ELECTRIC AUTO-LITE CO.
Parts & Service Division
Toledo 1, Ohio

Canadian inquiries should be addressed to Sarnia, Ontario

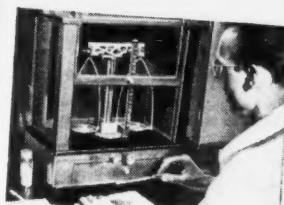


Money cannot buy better Automotive Electrical Equipment

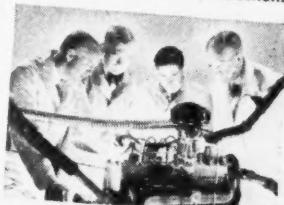
How AUTO-LITE Ignition Engineering Assures Dependability



CONTINUING IMPROVEMENTS by the foremost engineers working in one of America's great engineering laboratories.



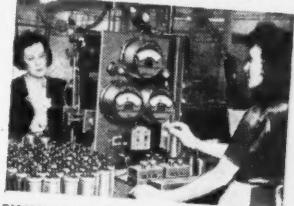
RAW MATERIAL TESTS . . . all materials must measure up to predetermined standards before they are released to production.



APPROVAL OF LEADING CAR, TRUCK AND TRACTOR MAKERS . . . as original equipment, after most searching tests by engineers.



ENGINEERED SPECIFICATIONS . . . scientifically developed for every part. Nothing left to chance. High quality assures dependability.



FINISHED PRODUCTS TESTS . . . every component and assembly passes repeated tests, checked constantly with laboratory research.

degree,
set the
heel to
degree

check
antiac
als on
(+)
nition
e plus
ributor
e neg-

assembled
l primary
coil in
adds
y wirin
thus,
e coil,

are
the pri-
ected
inals,
replace

natic
when
n all
1942,
cars,
with
dition
d the
ating
ound
at 30
n the
, so
375
when
dition

SHOP KINKS

\$25

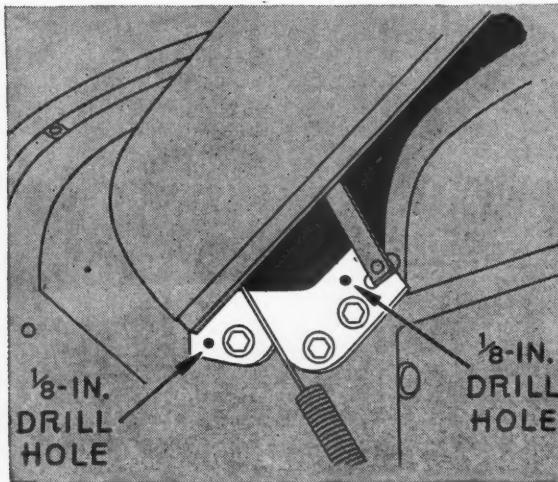
FOR THE BEST KINK
PUBLISHED EACH MONTH

\$5

FOR ALL KINKS
PUBLISHED EACH MONTH



BEST HINT OF THE MONTH



Aligning Alligator Type Hoods

Here is a time saver I use when I am working on cars which have the alligator type hood. Before removing hood take a small drill and drill two $\frac{1}{8}$ in. holes in the front and back of the hood plate as shown. Then when replacing hood simply line up the 2 holes, insert dowels and you have your original hood alignment without spending a lot of time realigning it. Hood should be checked for proper alignment before drilling holes. C. R. Young, Gen. Del., Affenille, S. C.

Grease Fitting Prevents Frozen Gear Shift Lever

We have had several Packard cars (1946-47-48) in which the gear shift levers at the steering column became seized. In the first two instances, we freed them with heat only, to have them become seized again in about three weeks time. We have found a permanent repair. Drill and tap upper lever and install a small zerk fitting and lubricate. Be careful to drill no greater depth than the lever itself. Bob Eagan, Sterling Garage, 32 Charlotte Street, Rochester 4, N. Y.

Pinion Seal Removed With Split-Rim Tire Tool

Here is a method of removing Chrysler product rear end pinion seals. This method makes it possible to do the job of removing and replacing pinion seal in twenty minutes and also provides the shop with a handy retainer puller for many other jobs. I used an old split rim tire tool. I welded a large flat washer to the handle and by doing a little grinding made the hooked end fit behind the seal. Then by using an old cluster gear as a knocker, the seal will come

right out. Martin Lehman, 1626 E. 35th Street, Brooklyn, N. Y.

Cover Bores With Paper While Grinding Valves

When grinding valves on L head engines, I cover the cylinder bores with a piece of paper held down the full length of the block with a piece of masking tape. This is a sure cure for keeping the carborundum and steel dust out of the cylinder bores. Leroy Bingham, Novak & Rapp, Ladysmith, Wis.

(Continued on page 72)

THE DOCTOR OF MOTORS



Rumor Page



IT'S RUMORED THAT: Automobile manufacturers are experimenting with sliding doors for passenger cars.

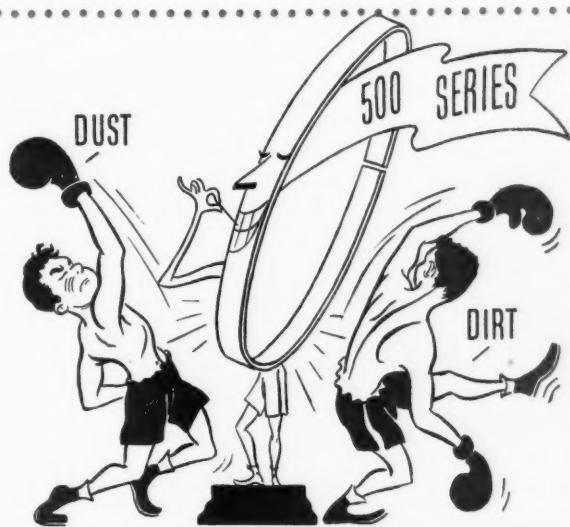
RIGHT! Already successfully applied to certain types of panel trucks, some manufacturers feel that sliding doors would eliminate much damage to cars when closely parked!

*Contributed by George L. Glaser, 2839 Sunset Pl., Los Angeles 5, Calif.



IT'S RUMORED THAT: Many Automobiles now travel nearly 90,000 miles before they reach the junk heap!

AMEN! According to the Automobile Manufacturers Association, the average car scrapped today is 13 years old—has traveled 90,000 miles. Only 20 years ago, the average car went 26,000 miles!



IT'S RUMORED THAT: "Weak, run-down" engines become "strong men" when PC Steel oil ring sets are installed.

100% RIGHT! Custom Made for "run-down" engines, the Series 500 and 5000 sets containing the famous PC sectional steel oil stopper, actually increase power... and save on gas and oil, too. The millions in use prove them best for badly worn engines!



IT'S RUMORED THAT: Night drivers will soon be able to see around corners!

TRUE! An accessory is being made to do this job for one make of car now. The special headlight fits in the grille, attaches to the steering mechanism, and swings around one-third farther and faster than the wheels!



*Perfect Circle pays \$50.00 for any Rumor accepted for this page. None can be returned or acknowledged, and all become PC's property. Send yours to Perfect Circle Corporation, Hagerstown 11, Indiana.

Shop Kinks . . .

Continued from Page 70

Brake Spring Pliers Help In Removing Shocks

When replacing shock absorbers on cars which have the shock going up through the center of the coil



spring, I have made a tool which makes the job easier. Since there is very little room to get hold of the shock through the coils of the spring, I have taken my brake spring pliers and ground knotches in them. The long handle of the pliers makes it possible to go between the coils and get a good grip on the shock absorber. *Herbert R. Nelson, 722 South 48 St., Tacoma, Wash.*

Ford Bushings Used In Chevrolet Transmissions

In overhauling transmissions in Chevrolet passenger cars from 1932 Models up, I find the cluster gear to be good except that the bushings get loose or worn out. Being unable to find Chevrolet dealers to supply these bushings, I used Ford bushing, parts Number 01A-7508 which fit perfectly. I use 4 instead of 2 which give more bearing surface. *Roy Graves, Medina Garage, Medina, Tenn.*

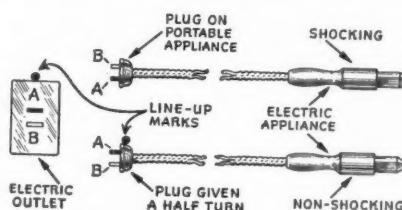
Removing Backlash From Worm and Sector Roller

I have found it to be very tiring removing the back lash between the worm and sector roller on '41 Chevrolets and up while the gear is in the chassis. This is a time saver. After making the adjustments on the wormshaft end play and the sector shaft end play I then remove the pitman arm and center the wheels by counting the number of complete turns and then dividing by two. Then loosen the three cover to housing bolts one-quarter turn, then remove the eccentric bolt lock nut, eccentric bolt, and eccentric sleeve. Then place a vise-grip pliers on the splined end of the sector shaft.

Move the pliers back and forth and noting the amount of back lash and at the same time take a light hammer and gently tap the sector shaft housing towards the driver side of the car until all of the back lash is removed, being careful not to hit too hard. After this take the eccentric sleeve and the eccentric bolt and replace them, being careful to let them seek their own guidance, otherwise you will disturb your finished adjustment. This is a great time saver because this gear adjustment is very hard to get at. *Robert J. Hemann, Hemann Bros. Chevrolet, New Baden, Ill.*

Turning Plug Prevents Electrical Shocks

Whenever any portable electrical appliance around the garage or service station starts giving shocks, the following kink will help. Pull the plug of the offending appliance



out from its socket or receptacle, give this plug a half-turn, then reinsert it back into its current supply. If a line is scratched on the plug in its non-shocking position to line up with a similar mark on the socket, and the plug of the offending appliance inserted so the two marks line up, shocks will be eliminated. *H. J. Miller, 1501 N. 61st St., Phila. 31, Penna.*

Dropping Ford Pan Without Removing Engine

On the 1949 Ford V8 motor, the pan can be removed without removing the engine by doing the following. Disconnect the left tie rod and drag link ends and intermediate steering arm bracket. Swing the assembly to one side. Take out the two rear motor-mount cap screws and jack up engine as far as it will go and block it there. Remove pan

screws, lower pan enough to see if No. 1 crank counterweight is up, then lower pan to floor. *Wayne L. Saton, c/o Bill Pierre Motors, 12531 30th N. E., Seattle, Wash.*

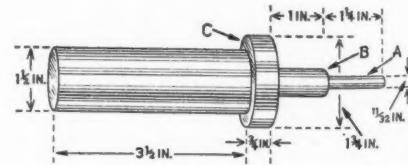
Changing Position of Ford Pedal Pads

On the 1949 Ford car the clutch and brake pedal pads are set in horizontal position standing upward. I have changed them to a vertical position on all '49 Ford cars I come in contact with and the owners are well pleased with this idea. The brake pedal covers a wider area this way and in case of sudden stop the pedal turned this way would give you more pedal space to hit with your foot and your ankle doesn't have to bend with the pedal. *L. H. Brannen, c/o Brannen Motor Co., Unadilla, Ga.*

Handy Guide For Installing Valve Guides

The shop kink I like best is a tool which has saved 75 per cent of the time required to install new guides in blocks. Formerly, I had to measure between each hammer blow to be sure I had it deep enough and not too deep. With this tool all you need to do is drive it in until you hit the top of the block. It was turned from 1 3/4 inch cold-rolled steel. The one I am sketching is for Dodge and Plymouth but could be adapted for many others. We also find we break less guides since we have used it. It took about 20 minutes to make and we made that back on our first job alone.

The stem fits inside the guide and the shoulder fits on the top of the guide. After starting the guide in the block with a few taps to be sure it is straight, drive it until the shoulder touches the top of the



valve seat. By using this method your guides will all be uniform in depth. *Glenn Landis, c/o Dunson Supply Co., 311-313 Spring St., Piqua, Ohio.*

SELF-CONTROL STARTS HERE



and to Restore

CAR PERFORMANCE

OIL-CONTROL STARTS HERE

TO STOP OIL-PUMPING REPLACE
WORN CONNECTING ROD BEARINGS

Check the connecting rod and crankshaft bearings *every time*. When worn, replace in sets with Genuine Federal-Mogul Oil-Control Bearings. They restore fine engine performance and build customer goodwill. Just like money in the bank for you!

FEDERAL-MOGUL SERVICE

(Division of Federal-Mogul Corporation)
DETROIT 13, MICHIGAN



CONTROL OIL-PUMPING
WHERE IT STARTS—WITH

FEDERAL-MOGUL

BEARINGS



The Complete Line—
More Than 7,000 Numbers

Engine Bearings • Bushings
Connecting Rod Exchange
Reconditioned Connecting Rods
Rebabbitted Connecting Rods
Connecting Rod Bolts and Nuts
V-Seam Piston Pin Bushings
Bearing Metals • Laminated Shims
Solders

New Packard Continued from Page 37

coupling at all times when it is not converting.

According to Packard this feature has the salutary effect of reducing engine speed at maximum throttle, providing the "feel" of direct drive, and making possible improved fuel economy.

On the other hand since the mechanism responds to a combina-

tion of governor and throttle pressure control, through the control valve system, the driver can overrule governor control at will under most driving conditions, and thus has available a combination of selective operating conditions. For example, it is possible to have direct drive in both high and low range; and torque converter drive

both in high and low range. Under ordinary driving conditions the direct clutch is engaged at around 15 mph with part throttle, but throttle pressure can overrule the governor even with maximum throttle, up to a road speed of around 50 mph. At that point, as a measure of safety, governor control will overrule throttle pressure.

In addition to the forward portion of the mechanism mentioned above, the unit contains a planetary gear set with practically the same controls as are known commercially. Planetary gear set operation is designed to provide reverse and emergency low maneuvers. Distinctive feature is that the gear ratio for these maneuvers is not the same. Reverse has a ratio of 1.64 to 1, while emergency low is 1.28 to 1.

From the standpoint of the driver, operation is simple and requires no explanation, except perhaps the fact that there is no clutch pedal. The only functions that concern the driver are those of moving the hand lever on the steering column to the desired position and pressing the accelerator pedal. There are five positions, "P" for parking, "N" for neutral, "H" for high range, "L" for low range, and "R" for reverse. As the driver selects the desired position, the movement of the linkage shifts the selector valve mechanically into the proper port position.

(Continued on page 76)

"...you'll do a better job with 'VIXENS'—



— they're smoother-finishing!"

"It's this way. Only a good filing job gives body and fender work the slick, new-car look customers want . . . the kind you get with genuine Flexible 'Vixen' Files.

"Look at those deep, sharp teeth. They're spaced right, with plenty of clearance. Chips don't clog the teeth and leave scratches. And a 'Vixen's' curve teeth cut clean and true, whether straight ahead or at an angle. It means a smoother finish...a 'Vixen' finish!"

ONLY
HELLER
MAKES
"VIXENS"

"Vixen" Files have been serving auto body and fender shops for years. Widely imitated, they have never been equalled. Specify genuine "Vixens"—made only by Heller—when you order from your jobber.

HELLER BROTHERS COMPANY
Newark, N.J.

Newcomerstown, Ohio

America's Oldest



File Manufacturers

VIXEN

Trade Mark Reg. U.S. Pat. Off.

MILLED CURVED-TOOTH FILES

MADE ONLY
BY
HELLER



"Oh no ma'am! You must be thinking of the Turkish bath next door."

Under
the di-
round
but
the
throt-
round
sure
will

por-
onod
ane-
the
com-
pera-
verse
Dis-
gear
the
1.64
8 to

the
re-
per-
match
con-
col-
and
al.
for
for
and
se-
se-
the

Behind your Repairman

is the N.A.P.A. Jobber



Any repairman can tell
the NAPA Jobber is a

From the NAPA Jobber, you
finest car and truck parts made—
And he can get them promptly.

The NAPA Jobber can give re-
sive service because he is part
largest independent parts organi-
are NAPA Warehouses and M
sources total a third of a billion d

All over America, 2,400 NAI
resources, and the fine parts below
any repairman—to keep you on th

NATIONAL AUTOMOTIVE PARTS ASSOCIATION • DETROIT, MICHIGAN

N.A.P.A.

is the largest Independent Parts
Organization in the Automotive Industry!



American Brakeblok Allied UNITED Monmouth TRICO Allied GRAPHO
WISCONSIN RARITAN ZOLLNER Buffalo MicroTest ECHLIN A.P.C. DETROIT
PURITAN Allied RAYMOND STANDARD ECHLIN New Britain Allied PRECISION
BROWN LIP DUCKWORTH MARTIN-SENIOR Belden FEDERAL Spicer
DITTMER CELORON BALKAMP

another way of saying—

Your NAPA Jobber is a Good Man to Know!

Every time your customers see an
NAPA advertisement like this in The Post,
you benefit. It emphasizes the prompt and effi-
cient service you can give. And it creates ready
acceptance for the first-quality parts so con-
venient to get from your NAPA Jobber.

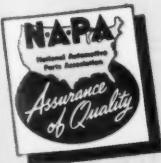
Month in and month out,
this Post advertising is
hammering home to your
customers the story of
NAPA quality and NAPA
supply service. As a result,
the NAPA Seal and all
that it stands for becomes
an even greater selling
asset for you.

Bear in mind this greater power of the
NAPA Seal in building more business for
your shop. Concentrate all your parts pur-
chases with your NAPA Jobber. Show your
customers the NAPA Seal on the parts you
use. Remind them that it is an unvarying
assurance of finest quality, on parts for cars
and trucks of all makes and all ages!

NATIONAL AUTOMOTIVE PARTS ASSOCIATION
DETROIT 1, MICHIGAN

N.A.P.A.

is the largest Independent Parts
Organization in the Industry!



On all these fine
parts, the NAPA
Seal is your assurance
of genuine quality—
always equal to or
surpassing the parts
replaced.

American Brakeblok Allied UNITED Monmouth STANDARD Allied GRAPHO BROWN LIP
WISCONSIN RARITAN ZOLLNER Buffalo MicroTest ECHLIN A.P.C. DETROIT BALKAMP
PURITAN Allied RAYMOND BRIGGS DITTMER MARTIN-SENIOR Belden New Britain FEDERAL Spicer

New Packard Continued from Page 74

Parking position is intended solely for holding the car on grades or hills to provide complete mechanical lock-up with the rear wheels. The low position is intended only for emergencies or for unusual acceleration.

It is also of interest that the only electrical element is a switch, so arranged as to permit engine start-

ing only when the control lever is in "P" or "N".

From a driver standpoint it is important to know that the device permits "rocking" of the car to get out of ruts or bad spots. This is done by moving the control lever from "L" to "R" and back and forth until the job is done. Push-starting in the event of a dead bat-

tery, for example, also is said to be a simple maneuver. Here the lever is to be placed in "N" position and held there until the car is moving about 20 mph. Then the lever is shifted into "H" where the mechanism will run with direct mechanical clutch "in", with the rear pump supplying oil pressure, until the engine starts.

The mechanism will be provided with a factory installed oil cooler of simple design as standard equipment, primarily to take care of unusual operating conditions.

The major elements of this device are as follows: 1. Torque converter; 2. Direct clutch; 3. Planetary gear set; 4. Governor; 5. Hydraulic pumps; 6. Control valves.

The torque converter assembly consists of three main members, although four elements appear in cross-section. The pump, which also serves as the housing for the assembly, is at the rear and is carried forward to bolt to the flexible disc on the crankshaft. The latter replaces the conventional flywheel, since the entire mass of the converter acts as a flywheel. The disc also serves to provide the flexibility required in a complicated system of this nature, making up for any tendency toward misalignment at any time.

The first turbine is nearest to the engine end and has bolted to it the smaller diameter second turbine stage which is seen nearest to the

(Continued on page 78)

Pete "BORROWS" More than he Bargains for!

JOE, I BORROWED YOUR RATCHET WHILE YOU WERE OUT. BUT HOLY SMOKE, WHAT DRIVE IS THIS?

HAW-HAW! THAT'S BEEN MY BIG SECRET AROUND HERE.

...BUT, PETE, I'LL BREAK DOWN AND TELL YOU. LOOK - MY WRENCHES ARE NUGGETS. THEY'RE THE REASON WHY I GET MY JOBS DONE FASTER THAN YOU OTHER GUYS!

A RATE-BUSTER EH?

YES, NUGGETS HAVE A DOUBLE-DUTY DRIVE! I DON'T LOSE TIME HUNTING FOR THE RIGHT SOCKET. EACH HANDLE FITS EVERY SOCKET IN MY TRAY--RIGHT FROM 5/16" UP TO 1 1/4"!

I SAVVY... AND YOU'RE NOT ALL FOULDED UP WITH DUPLICATION.

SO.. Another "Pro" Sees his BLACKHAWK Jobber-and-

THANKS TO JOE'S TIP--I'VE DISCOVERED THE HOTTEST WRENCHES EVER TWIRLED!

BETTER CHANGE TO NUGGETS YOURSELF AND GET WRENCH-HAPPY!

TOSS OUT YOUR MONEY-WASTING WRENCHES. BEAT THE CLOCK WITH NUGGETS. THEY PAY FOR THEMSELVES BY RATE-BUSTING.

TAKE A TIP FROM THE PROS.

RATE-BUSTING PAY

BLACKHAWK® NUGGETS

SOCETY WRENCHES

HAND JACKS • SERVICE JACKS • PORTO-POWER • JACK-RACE

MAIL THIS COUPON TODAY!

to BLACKHAWK MFG. CO., Dept. W-659, Milwaukee 1, Wis.

Please send me RUSH your FREE booklet on Rate-Busting Nugget Socket Wrenches.

NAME.....

ADDRESS.....

CITY..... STATE.....



"This is the same sand pile I played in last summer!"

Super Product!

Compare Super Pyro with *any other anti-freeze* in its price range!

1. The anti-freeze protection of Super Pyro is $33\frac{1}{3}\%$ more effective than that of most other types!
2. Super Pyro protects not just one or two, but all 7 metals in the cooling
3. Super Pyro—due to an exclusive U. S. I. ingredient—is *longer-lasting*!
4. Super Pyro has a new freedom from odor!



Super-Safe!



That's you—if you order your supply of this Super Product now! Yes, there will be more Super Pyro—but still not enough to satisfy the demand for this super-popular anti-freeze. So play it Super-Safe—order your Super Pyro now! CALL YOUR JOBBER TODAY!



Super Power!



U. S. INDUSTRIAL CHEMICALS, INC.

This Super Product deserves a super promotion . . . and it's all set. Super posters will sell Super Pyro to over 41,300,000 people. Super color ads in Look, Collier's and the Saturday Evening Post will sell Super Pyro to over 130,446,000 readers! Super newspaper ads every week will sell Super Pyro 149,908,712 times! That's Super Power! And that's what's going to send people right into your station for Super-Safe Super Pyro!

SuperPyro

The longer-lasting anti-freeze!

New Packard Continued from Page 76

pump. Being bolted together they operate as a single unit.

The reaction member is between the first and second turbine stages and is mounted on a sleeve which terminates at the bulkhead with a one-way clutch of sprag type. The overrunning clutch serves to lock the reaction member during the phase of torque multiplication,

then releases it when the coupling point is reached. The converter then acts as a coupling until the direct clutch engages. Consequently, the reaction member is free to rotate at all times except when torque multiplication is required.

The first and second turbine elements are made with formed blades having a rounded nose and sharp

exit. The pump too has a rounded nose and sharp exit but incorporates a constant section for the major portion of the length of the blade measuring from the nose. The second turbine element is so formed and positioned as to control flow into the pump to achieve a rising input speed curve, starting with an engine speed of around 1600 rpm. At the same time it has the effect of extending the clutch point for smooth engagement.

Through the action of modulator valving the torque converter contains an oil pressure of about 30 psi.

The direct clutch, the mechanical clutch at the engine end, is a single plate member of familiar design, having a balanced spring damper drive similar to the dampers used by Packard in their conventional clutches. However, since the clutch must operate constantly while submerged in solid oil, it is fitted with a specially designed cork facing on both sides of the plate. It is claimed that this design functions perfectly under the conditions specified.

As illustrated, both the turbine member and the clutch driving plate are bolted to a common flange and rotate together. This flange, in turn, is attached to the shaft which extends through the entire unit to the rear sun gear of the upper planetary train.

As mentioned earlier, the clutch is actuated by the governor, engagement being effected by applying oil pressure through the piston on the pressure plate.

(Continued on page 80)



heat...chemical action...air-pressure and clear water rinse. Hyppressure Jenny with Steam Thoro-Purge back-flushes the engine block and radiator in one simple operation—removes grease, sludge, rust and scale deposits, while your customer waits.

It's Fast! It's Thorough! It outmodes all other cooling system cleaning methods!

Get set Now for the rush of spring radiator cleaning and flushing business ready to break. We furnish everything including signs, window streamers, etc., to get you going and the profits rolling in.

Don't delay! Write today! NOW!

HYPPRESSURE JENNY DIVISION
HOMESTEAD VALVE MANUFACTURING CO.
P.O. Box No. 95-E, Coraopolis, Pa.

PLEASE RUSH me full information on HYPPRESSURE JENNY and STEAM THORO-PURGE including your 4 page FREE Booklet, "\$10,000 More Business a Year."

Name.....
Address.....
City..... Zone..... State....

HYPPRESSURE JENNY DIVISION
HOMESTEAD VALVE
MANUFACTURING CO.
Serving Since 1892
CORAOPOLIS, PA.



"Ever hear a sweeter sounding engine?"

**Save time...
save work...**

with MOPAR STEERING PARTS

You can depend on MoPar Steering Parts for servicing *any* Chrysler Corporation-built vehicle.

The reasons are simple as A-B-C:

- A. MoPar parts are *factory engineered and inspected* for Plymouth, Dodge, De Soto and Chrysler cars and Dodge "Job-Rated" trucks.
- B. They are furnished by Chrysler Corporation, the producer of the vehicles in which they are to be used. They're made right! They fit right! They work right!
- C. You can get convenient MoPar service packages. Tie Rod End Packages and King Pin Packages give you all the parts you need for steering service jobs.

Plan now to save time and work . . . to build customer good will . . . by using MoPar Steering Parts for Chrysler Corporation-built vehicles.

CHRYSLER CORPORATION • PARTS DIVISION, DETROIT 31, MICH.



**HERE'S WHERE TO GET
MOPAR STEERING PARTS**



You can get MoPar Steering Parts from your nearest Plymouth, Dodge, De Soto or Chrysler dealer. Call on him today!



Factory Engineered and Inspected for
PLYMOUTH • DODGE
DE SOTO • CHRYSLER CARS
DODGE "Job-Rated" TRUCKS

In the planetary gear set, the rear sun gear is splined to the shaft which is attached to the flange at the forward end, the same flange also being attached to the turbine element. As illustrated, the gear set has three long pinions and three short pinions meshing with them. Rotation of the rear sun gear, engages the long pinions and, in turn,

the short pinions.

The high range clutch is of familiar multiple-disc type and is actuated by hydraulic pressure on the piston. This has the effect of engaging the front sun gear. To provide rapid but controlled movement of the clutch, it is provided with a pressure relief hole, vented to the atmosphere, the function being to

separate the first plate of the multiple disc group.

The brake band for low range operation is mounted on the O. D. of the high range clutch. In this phase the forward sun gear is held stationary, causing the short pinions to move in the same direction as the rear sun gear, "walking" around the front sun gear in clockwise rotation. This gives a reduction of 1.82 to 1.

For reverse, the reverse band clamps the O.D. of the ring gear and the pinions are caused to "walk" around the ring gear (instead of the sun gear as for low) in counter-clockwise rotation. In this case the gear ratio is 1.64 to 1.

The governor is of centrifugal type, having two arms serving as weights, and is driven from the speedometer gear. Governor output is in the form of hydraulic pressure, the output curve having reasonably near straight line relation with respect to speed by modification with spring loading. One weight, the one at the top in cross-section, gives the characteristics of the output pressure curve. The other weight serves as a vent valve when car speed is around 15 mph, and cuts out when the speed drops to between 12-13 mph.

Despite the automaticity of functional control, the device is designed to leave control within the will of the driver so as to meet any variety of operating conditions. Consequently governor action is modified by throttle pressure through direct mechanical linkage from the accelerator pedal to one end of the control valve to which the governor pressure line directed. In effect, therefore, engagement of the direct clutch depends upon the balance of forces exerted by the driver and the governor.

Having this in mind, it is found that around 15 mph car speed, the condition of minimum throttle, governor pressure normally will engage the clutch and place the mechanism in direct drive.

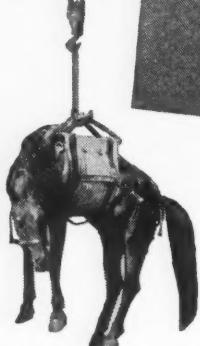
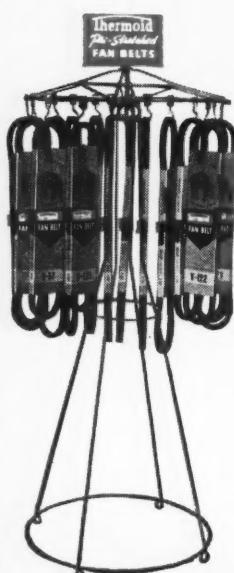
However, at any time the driver can overrule the governor and returns instantly to converter drive by kicking the pedal past full throttle position. Sufficient force is exerted in this manner to counterbalance the maximum hydraulic

(Continued on page 82)

Put Your Money on the

Thermoid Line

THE BEST
NAME IN
FAN
BELTS



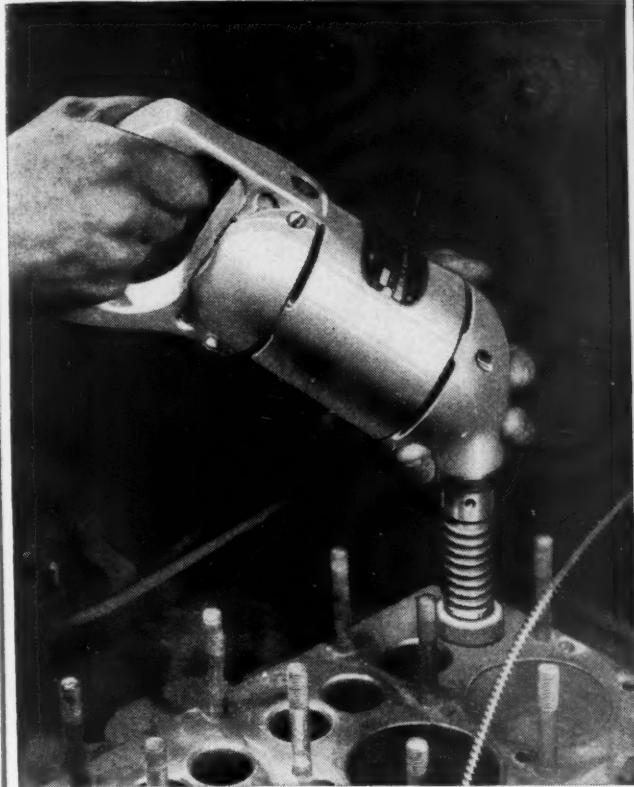
First in favor because Thermoid Fan Belts are "a horse of a different color" and merchandised with "sell-on-sight" display racks. Is it any wonder more dealers make more money with Thermoid?

No stretch—no slip—no wear—no fail, Thermoid Pre-Stretched Fan Belts stay the correct size.

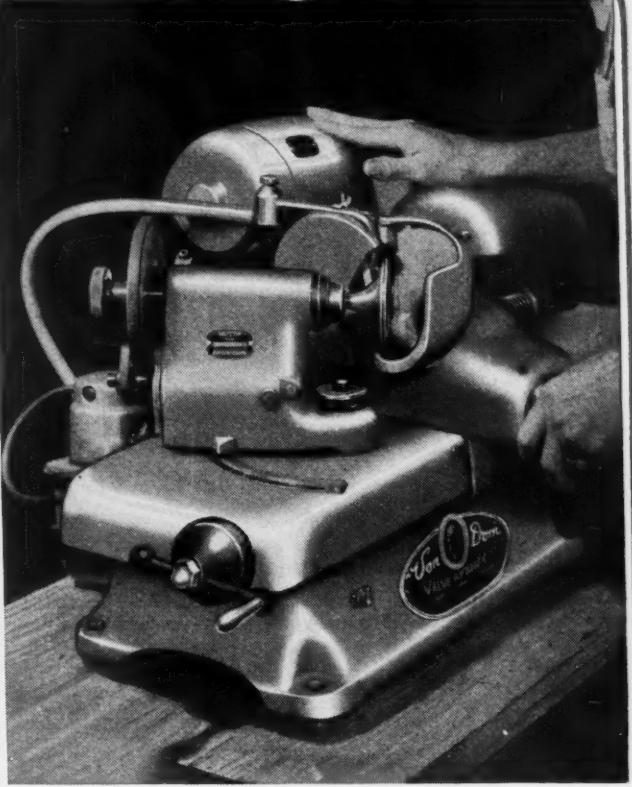
The Thermoid Line

Brake Linings • Clutch Facings • Fan Belts
Radiator Hose • Hydraulic Brake Parts and Fluid
Car Mats • Thermoid Precision Process Equipment
Complete Brake Service Departments

Thermoid Company, Trenton, New Jersey



GRIND VALVE SEATS with Van Dorn "Vibro-Centric" Valve Seat Grinders. They put a mirror finish on any valve seats, hard or soft. Turn out perfect results with only a few seconds grinding per seat.



GRIND VALVE FACES with Van Dorn Super-Service Valve Refacers. They quickly grind an absolutely smooth surface and factory-accurate angle on valve faces. Grind valve stems and tappets for exact clearance.

HOW

"VIBRO-CENTRIC"
REGISTERED TRADE MARK
**gives you PERFECTLY
MATCHED VALVE JOBS!**



FOR POWER SPECIFY

"Van Dorn"
(DIV. OF BLACK & DECKER MFG. CO.)

PORTABLE ELECTRIC TOOLS

DRILLS • SANDERS • SHEARS • BENCH AND PORTABLE GRINDERS

VAN DORN HEAVY-DUTY DRESSING STAND combines speedy adjustment and operation with absolute accuracy. A big money-saver when you're doing "production" valve reconditioning day after day!

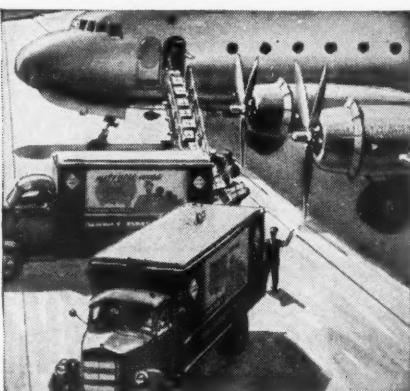
\$5.07 saved a contract ...and a man's business



Special switches were needed to complete an electrical instrument contract. Late delivery of finished items would kill chances of future orders and lay off men. Switches were 1100 miles away, but Air Express delivered the 15-lb. package at 3 A.M.—8 hours after pick-up. Cost, only \$5.07. Air Express now used regularly. Keeps down inventory, improves customer service by early delivery.



Low as \$5.07 was, remember Air Express rate included door-to-door service, receipt for shipment and more protection. It's the world's fastest shipping service that every business uses with profit.



World's finest Scheduled Airline fleet carries Air Express. 24-hour service—speeds up to 5 miles a minute. Direct to over 1000 airport cities; air-rail for 22,000 off-airline offices.

FACTS on low Air Express rates:

17-lb. carton of hearing aids goes 900 miles for \$4.70.
12 lbs. of table delicacies goes 600 miles for \$2.53.
(Same day delivery in both cases if you ship early.)

Only Air Express gives you all these advantages: Special pick-up and delivery at no extra cost. You get a receipt for every shipment and delivery is proved by signature of consignee. One-carrier responsibility. Assured protection, too—valuation coverage up to \$50 without extra charge. Practically no limitation on size or weight. For fast shipping action, phone Air Express Division, Railway Express Agency. And specify "Air Express delivery" on orders.

SPECIFY AIR EXPRESS



GETS THERE FIRST



Rates include special pick-up and delivery door to door in principal towns and cities

AIR EXPRESS, A SERVICE OF RAILWAY EXPRESS AGENCY AND THE
SCHEDULED AIRLINES OF THE U.S.

New Packard Features Torque Converter

Continued from Page 80

pressure developed by the governor. Nevertheless, to safeguard the mechanism, governor action is such that it will develop sufficient pressure at 50 mph to overrule pedal pressure with maximum throttle and force the mechanism into direct drive.

This unit has two hydraulic pumps, the large capacity front pump, driven by the front turbine members; and the rear pump, of much smaller size, driven from the tail shaft. Generally speaking the front pump is in action on starting and accelerating up to a certain range of car speed, thus assuring positive action of the hydraulic system. However, as the vehicle gains momentum the smaller, rear pump comes into play with ample capacity at the higher shaft speeds, while the front pump idles.

Hydraulic pressure from each pump is fed to opposite ends of the check valve, the system being so balanced as to cut off the front pump and leave it in idling position when the rear pump finally takes hold. By this means the engine is relieved of the task of driving the large front pump, thereby increasing net power output.

Pump pressure varies in accordance with demand for various maneuvers. The front pump has a capacity of around 80 to 90 psi for forward motion; and this is about doubled for reverse operation through modulator valving. The rear pump, at operating speeds, will deliver a pressure of around 85 to 95 psi. The front pump has a pressure of about 15 psi at idling speeds.

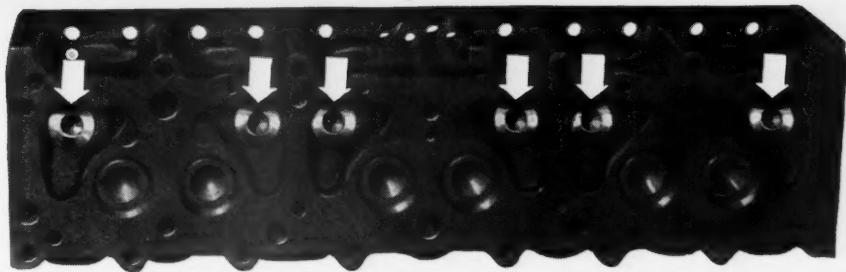
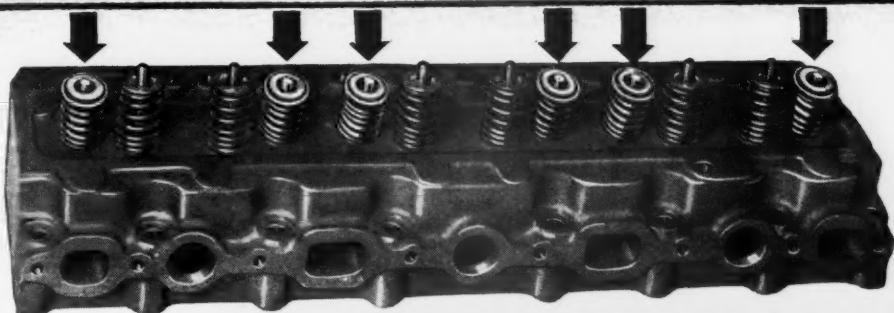
Both pumps are of Eaton Gerotor type with the Gerotor element mounted on the drive shaft.

The main control valve which arranges the ports for each maneuver is positioned by the hand lever. In addition, the mechanism contains other forms of valves designed to perform automatic control functions. Among these is the front oil pump relief valve, mounted at the front end; the throttle valve; shift valve for direct drive, having a mod-

(Continued on page 84)

A SUPER CYLINDER HEAD for Chevrolet Engines

EQUIPPED WITH NEW POSITIVE-ROTATING THOMPSON ROTOCAPS



Built by your Thompson Products Jobber

MORE POWER—GREATER ECONOMY

...Two to five times longer valve life

THE HEART of this completely rebuilt super head for Chevrolet engines is the postwar positive-rotating Thompson ROTOCAP—the patented valve rotator that is being adopted by so many important builders of heavy-duty engines.

The assembly also includes other heavy-duty Thompson Parts, all accurately fitted—the entire head ready for installation.

Besides Chevrolet, TP distributors can convert G.M.C., Cummins, International and other valve-in-head engines on short notice.

Take the old head to your Thompson distributor. He may have a rebuilt super-head in stock for immediate exchange. If not, he has the Thompson Parts and facilities to give prompt service.

Rebuilt for heavy duty service with these Thompson parts

ROTOCAP—rotates valve 6° at every lift. Keeps valve and block seats clean. Increases average valve life 2 to 5 times. Fewer re-grinds!



AEROTYPE VALVE—of special aircraft valve steel. Seat and tip faced with hard alloy for greater resistance to pounding and wear.



DURACROME VALVE SEAT—made of extremely hard, patented alloy. Resists wear, maintains sealing efficiency.



VALVE GUIDE—of hard chrome-nickel alloy with hole accurately sized and burnished for perfect valve stem fit.



VALVE SPRINGS—of special spring steel. Springs tested and matched for uniform tension.

See Your **Thompson** Products Jobber

CLEVELAND • DETROIT • LOS ANGELES • ST. CATHARINES, ONTARIO

New Packard Continued from Page 82

ulator valve at one end; and a transfer valve.

Consider now some of the special functions of hydraulic control. First is the unique arrangement for getting fast but modulated engagement of the bands for "low" and "reverse." As shown in section, the main piston has a small center member as well as a large diameter pis-

ton. Function of the small piston is to take up the slack in the band, just before the band is clamped, and apply a light load on the brake. This is done to take up the standard mechanical clearance between the band and drum. At the same time oil pressure causes the large piston to move and when it has advanced 0.030 in., a check valve to the small

piston closes, permitting the large piston to apply the load by completing its cycle. Movement of the large piston is cushioned by the passage of oil through a restricted vent, thus giving rapid but modulated engagement, free from shock.

The shift from low to high range is effected through the timing valve. This is arranged to permit the "low" brake to hang on until sufficient pressure is built up in the high range clutch to stop any tendency to runaway due to the time lag between brake band disengagement and clutch engagement. This valve also can delay movement from high to low so as to prevent premature engagement of the brake band. Yet the change is permitted to be made at a fast rate to facilitate the "rocking" maneuver between "low" and "reverse."

Parking and neutral positions, selected by the hand lever, are comparatively simple maneuvers. When getting into parking position, the engine is idling, the front pump operating, and there is pressure feed within the converter. As the hand lever is moved into "P" position, the mechanical linkage is moved manually to turn a spring loaded member on a shaft at the rear end of the transmission, as shown in cross-section. This member bears on a pivoted lever which has a pawl at the end for engagement in a toothed wheel. Spring loading of the actuating member permits the pawl to ride over the wheel until it can drop into engagement in a tooth space. This locks the entire shaft and gear system securely to the gear box.



When you add more air-operated devices to present facilities, better make sure your present Air Compressor can deliver enough capacity to give satisfactory performance. PAR Heavy Duty Model 100, 10 H.P. horizontal, engineered with all the outstanding PAR features including very fast pumping, slow speed for longer life and trouble-free performance, gives enough extra air power to keep your shop operations going at peak efficiency. Ask your equipment jobber about PAR Model 100 today.

BY COMPARISON — YOU'LL BUY PAR



PAR AIR
COMPRESSORS



PAR
REFRIGERATION
COMPRESSORS



WRAP-O-MATIC
CANDY & COOKIE
WRAPPING
MACHINES

LYNCH
CORPORATION
PAR COMPRESSOR DIVISION
TOLEDO, OHIO



PAPER PACKAGING
MACHINES

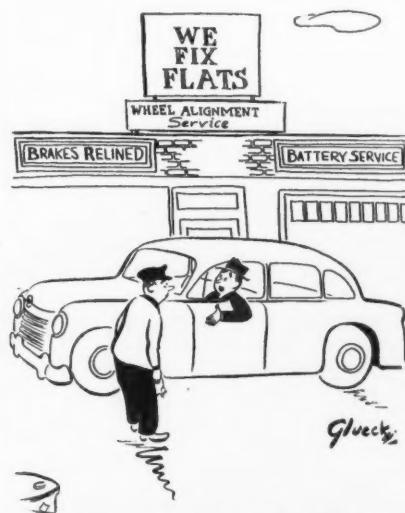


MORPAC
BUTTER & OLEO
PACKAGING
MACHINES



Glass FORMING
MACHINES

MEETS
OR EXCEEDS
U.S. BUREAU OF
STANDARDS
REQUIREMENTS



Greatest Car Value Chrysler Ever Created



Prestomatic Fluid Drive* Transmission
... Drive without shifting

**Ready for the "buyer's market" with over 50 advances
for greater value in comfort, safety, and performance!**

GREATER VALUE IN PERFORMANCE! Here is money's worth that will demonstrate on the road.

Chrysler-Plymouth dealers can show off a new Water-proof Ignition System that's exclusive with Chrysler. Even a hose played on the engine can't stall it!

There's new money's worth in higher compression performance from Chrysler's great Spitfire engine! Faster acceleration. Smoother response. And new lower oil consumption and longer engine life through special protection for cylinder walls pioneered by Chrysler! Dealers can let a prospect take the wheel and sell himself on the greatest value in steering ease Chrysler ever offered . . . new center tie rod steering. There's braking power. An improved Safety-Level-Ride.

14 real advances in performance to talk about and demonstrate! What an answer to the man who's price conscious and wants all he can get for his money! All plussed by an amazing competitive economy story on the performance of Prestomatic Fluid Drive Transmission!

GREATER VALUE IN SAFETY . . . GREATER VALUE IN COMFORT! The subjects of safety and value are gold mines of talking points for Chrysler-Plymouth dealers. Brake linings that last twice as long! Brake drums that can't be scored. Safety Rim Wheels that make it almost impossible to throw a tire. New bodies 23 percent stronger. New "Safety Cushion Dash" with Safety Instrument cluster in direct line of driver's vision! Engineering through and through that means lower maintenance, longer life!

Greater values in comfort are there for every prospect to see and feel for himself. More headroom, more shoulder room, more legroom. Chair-height seats! Advantage after advantage created by common sense and imagination in Chrysler engineering and research.

WHAT A CAR . . . FOR THE DEALER WHO WILL GO TO WORK AND GET PROSPECTS INTO HIS SHOW ROOM. When they "see it—sit in it and drive it" . . . that's proof enough of the greatest value in Chrysler history . . . proof enough that—

YOU ALWAYS GET THE GOOD THINGS FIRST FROM CHRYSLER

*gyrol Fluid Drive

The Beautiful Chrysler | Silver Anniversary Model

Facts vs. Fancies . . . Continued from Page 39

this the author is supported by published statements issued by the AAA. Insurance companies have been equally quick to justify tremendous increases in liability rates owing to the current cost of repairs. It is true that some casualty companies are loathe to write the old familiar \$50-deductible.

Having stated these prelimi-

naries, the article then goes on to damn mechanical design and other things by statements that hold as much water as a sieve.

Since national publications reach millions of people, our readers and others who have a stake in selling cars should know the facts and should be prepared to give the facts to the public.

In our opinion it is not only good business but a public service to give prospective buyers the real facts — to straighten out impressions gained by staring into a trick mirror.

Let's look at "Those Big Fat Cars." You know the names of the real big ones. We can identify about eight of them. They were always big and handsome. They were always intended for people who wanted luxury and performance and could afford to pay the freight. Garages were built big enough to house them comfortably. Yet look at the production figures. The real big ones represent 18.5 per cent of total production in 1948.

Returning to the matter of garages. Is the size of old garages to pace the progress of the biggest industry in the USA? Does the fact that many city streets in small towns have never changed in width mean that the folks should go back to the horse and buggy? Or isn't it a fact that our country is building new roads and superhighways to accommodate and facilitate the flow of business, transportation and travel? What made this country great anyhow? Old back alleys or new highways?

As a matter of fact it looked as if all cars were going to get bigger and bigger right after the war. And the public loved it, as far as we

(Continued on page 90)

You Get Repeat Sales with ZECOL

NATIONALLY ADVERTISED...



MILLIONS OF CAR OWNERS read ZECOL advertisements in The Saturday Evening Post, Collier's, Popular Science Monthly, and Popular Mechanics. ZECOL is a constant repeat item because of its quality and ease of application.

Car owners Buy ZECOL WAX and SCUM REMOVER . . . Yes, they buy it again . . . and again . . . and again!

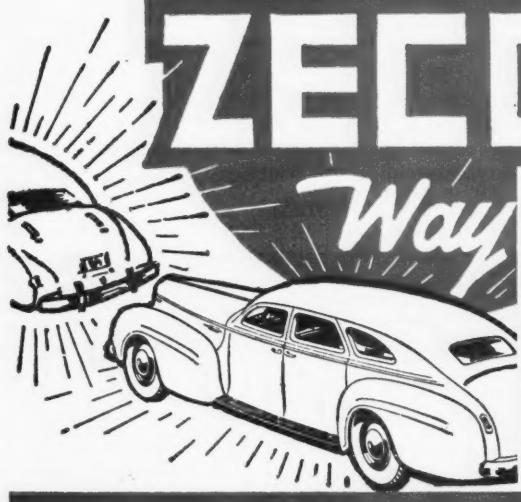
The "Quick and Easy ZECOL Way"—rub on, let dry, wipe off—is the fastest repeat line in the field. Your jobber can supply you!

ZECOL, INC., Sole Mfrs.
Milwaukee 1, Wisconsin

5M

The
Quick and Easy

ZECOL



"The law says you have to have a red light on that!"

FOR SMOOTH,

QUIET POWER

When your customer foots the bill for a piston replacement job, he expects you to put real "snap" into his car's performance. He'll get that and more, too, when you install aluminum pistons of genuine ALCOA Lo-Ex.

They deliver smooth, quiet piston power because they fit correctly. Clearance is controlled by the special low-expansion alloy and modern flexible-skirt piston design. Compression improves. Your customer gets better mileage on gas and oil. His engine runs cooler, too, because ALCOA Lo-Ex conducts heat fast.

Make your shop "Piston Headquarters". Standardize on replacement pistons trademarked ALCOA Lo-Ex—the name that identifies light, strong aluminum pistons, cast by Alcoa, finished by leading automotive suppliers. ALUMINUM COMPANY OF AMERICA, 2133 Gulf Bldg., Pittsburgh 19, Pa.



...look for
ALCOA LO-EX!



Aluminum Pistons of **ALCOA LO-EX**



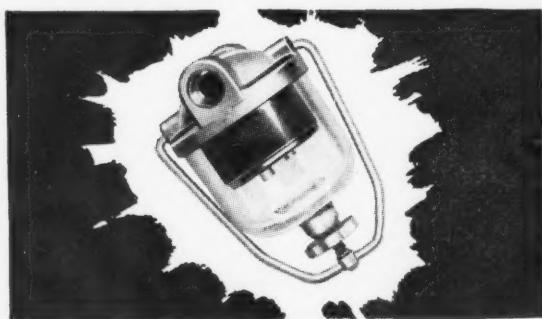
Big Summer



Be a national advertiser
—display this Sign
on the lines you handle



AC AIR CLEANERS AND ELEMENTS



AC GASOLINE STRAINERS



AC SPEEDOMETER CABLE-CASING ASSEMBLIES—
"TAILOR-MADE"

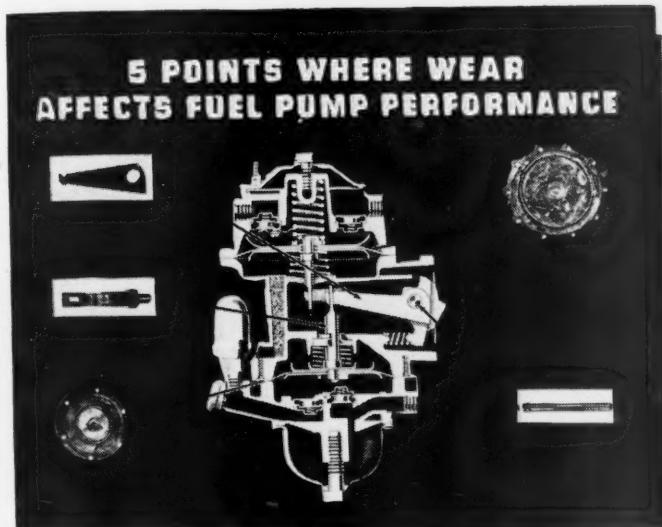
During May, AC begins its third big boost of the season for AC Profit Boosters . . . a great nation-wide sales and advertising drive on AC Fuel Pumps and the AC Fuel Pump System.

The AC Fuel Pump is America's most popular equipment item and one of the most popular replacement items. More than 35,000,000 are in daily use. Since 1944, AC Pump sales have gone up 263% . . . and you can easily double or treble your pump sales, too.

You can build a steadily growing business by handling any one of AC's replacement units and displaying the nationally advertised AC Service Dealer Sign on the products you are handling. But you'll reach the height of your profit opportunities by stocking and pushing the entire AC Profit Booster line. Tie in and cash in with AC.

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

Boost for the AC Profit Boosters



1 WORN LINKAGE—causes slow priming and lack of fuel flow. These mean hard starting and loss of power.

2 WORN PULL ROD—causes poor linkage movement which means reduced pressure because of lack of full diaphragm stroke.

3 PUNCTURED FUEL DIAPHRAGM—evidenced by low gas mileage per gallon and leakage through vent hole.

4 PUNCTURED VACUUM DIAPHRAGM—produces poor windshield wiper operation, excessive oil consumption, and poor idling condition.

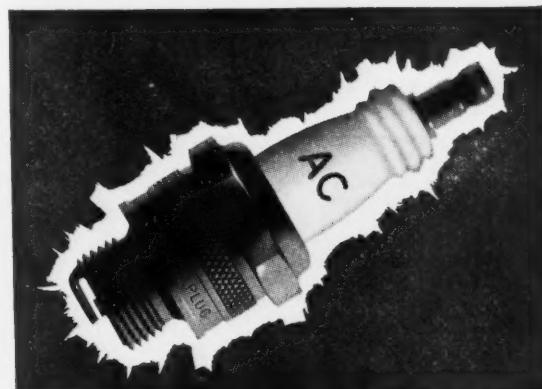
5 WORN ROCKER ARM PIN—causes excessive rocker arm play which shortens diaphragm stroke. Result is pump failure through lack of fuel, particularly noticeable under extreme engine heat.

Worn or any one part will quickly produce abnormal waste in all parts, resulting in pump failure.

FUEL PUMP

Size 18" x 24½"

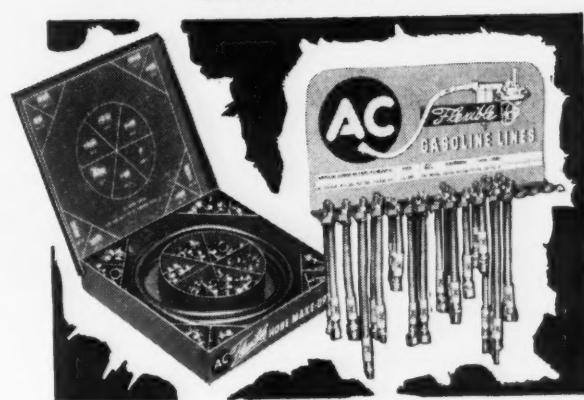
May 15, AC Service Dealers throughout America will display this big 2-color poster, featured in AC national and farm magazine ads, emphasizing the need for preventive service on fuel pumps. Be sure your AC wholesaler puts you on the list to receive it.



AC SPARK PLUGS WITH
PATENTED CORALOX INSULATORS



AC OIL FILTERS AND ELEMENTS—
"DIRT-PROOF" ENGINE OIL



AC FLEXIBLE LINES—"TAILOR-MADE" ASSORTMENTS
AND BULK MAKE-UP KITS

Facts vs. Fancies . . . Continued from Page 86

could see. But in 1946, Studebaker — a fast moving independent — came out with its postwar Champion and Commander. Not only were they daringly styled, for the time, but they were shorter and narrower than previous models. They have an overall width of only 69 19/32 in. and are narrower today than any other make except Crosley.

Of the '49 models, Ford and the small Plymouth are only a fraction over 71 in. in width; and over a dozen models are within a maximum width of 74 in., the width of the Chevrolet.

Taken as a whole the '49 Chrysler Corp. cars are shorter, narrower and lower than they were before. And Kaiser-Frazer jobs actually

have been only 72 7/8 in. wide from the start.

In all the years we have watched the motor car scene, this is the first time we have seen a statement to the effect that the dealers are the ones who dictate to the manufacturers as to the styling and mechanical design. That is strictly a new idea.

What does dictate model changes? First of all there is competition. No producer can afford to stand idly by while a competitor breaks out with something new or startling. Then you have the push of new developments. Parts makers and suppliers and the accessory people are always on the go looking for new things to appeal to the public and give them an edge on competition. Whatever is good and priced right has a chance to show on new models.

Then there is the most important item of all. Nothing ever built is as right as the engineers expect it to be. Whatever the unforeseen shortcomings or troubles, they come out when the cars get on the highway with the little woman behind the wheel. The factories watch service reports from dealers and from their own service representatives. They analyze these reports and work out corrective measures, sometimes change parts entirely. The net result is reflected in the improvements found in the new package. That's progress. And that accounts for many of the features in a new model. It adds up to owner satisfaction.

The "experts" find fault with "new" models. They say the manufacturer doesn't go far enough. Well, how frequently do we have a Hydra-Matic or Dynaflow or a new engine such as the Cadillac V-8 or the Olds Rocket? When an industry produces five million cars a year, it is bound to be conservative. It can't afford to make mistakes. The new Cadillac V-8 took ten years to develop to the production stage. Most new things are tested in the lab and on the road for from 18 months to five years before they are offered to the public.

What about cost? The cost of motor cars today is high. But how
(Continued on page 92)

BURD
"Super Hi-Speed"
OIL RING

Greater flexibility of wide-channel cast iron ring assures wall contact with minimum wear.

Ventilated expander guard ensures conformity in worn, out-of-round cylinders.

Both steel segments go below cast ring and its expander for added wall wiping.

Easy On Cylinder Walls

The Problem: How to get better oil control with minimum cylinder wall wear and low overhaul costs.

The Answer: Burd "Super Hi-Speed" Oil Rings. First, because the high flexibility and soft action of the cast iron ring assures perfect conformity with badly worn walls. Second, because the steel segments, installed *below* the cast ring, provide a positive wiping action *without excessive wear*. Burd "Super Hi-Speed" Oil Rings are **ENGINEERED FOR RESULTS**...are available in a complete range of sizes and in combination sets for every type of engine. Ask your Burd jobber.

BURD PISTON RING CO. • ROCKFORD, ILL.



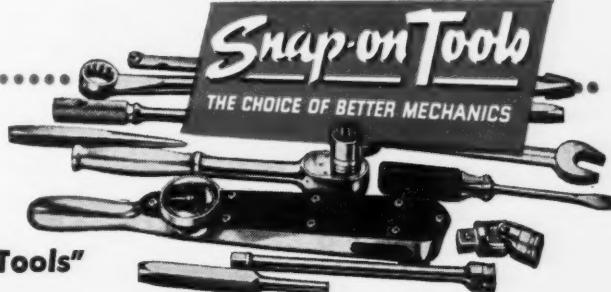


**"Snap-on Tools
are the fastest
and most accurate tools
we have ever used..."**

Both Service Managers of Silvertown Chevrolet Co., at Providence, Rhode Island, Phil Desrochers (left) and Pete LaFond (right) agree to this statement. Expert mechanics themselves, they know Snap-on Tools give their boys the right tool for every job . . . making it possible for them to do a faster, more accurate job which all adds up to more "customer satisfaction" and bigger pay envelopes. These Service Managers know that every call of the Snap-on man helps keep tool kits up to par

and cuts wasteful "tool-chasing" time for their mechanics. This Snap-on direct-to-user tool service is available through 40 factory branches employing almost 800 trained field representatives. "It's the time-saving way to buy time-saving tools."

SNAP-ON TOOLS CORPORATION
8036-E 28TH AVENUE • KENOSHA, WISCONSIN



**For 28 years, Snap-on's Direct-to-User
Tool Service has proved to be
"The Time-Saving Way to Buy Time-Saving Tools!"**

Facts vs. Fancies . . . Continued from Page 90

much change can you afford each year without pricing yourself out of the market?

Here are some figures based on published reports. Since the end of the war, motor car producers have laid out more than \$400 million to tool up for new models, in addition to \$1½ billions for new plants and equipment. Hudson paid

out \$16 million to launch its new jobs; Nash spent \$15 million; Packard \$20 million. General Motors is reported to have spent \$150 million; Ford and Chrysler Corp. about \$90 million apiece.

How often can an independent lay out around \$15 million for new model tooling? Not too often, we believe, if he is to stay in business.

And remember these figures are real money, not peanuts, even if they don't compare with government spending. Besides they come out of private capital and not income taxes.

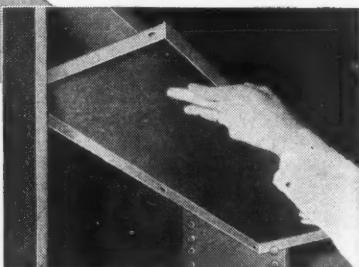
Then the "experts" get into the technical problems. When the cars were made bigger and moved out front and rear it upset their "natural four-point balance." Say that again! What does it mean? We confess we don't know exactly. But we do know that the industry has been working together in SAE committees and on their own proving grounds to seek ways of improving the ride and the comfort of riders. One way has been to get the rear seat riders off the rear wheels and down inside the suspension. That's why the rear seat was moved forward.

We move next to European cars. Can it be the "experts" are out of step when they say that these imports are superior to those built in the USA? It is pointed out that recently we absorbed around 1000 European cars a month. Actually, in 1948 we absorbed 23,000 such cars. Why? Well for one thing we could not produce enough cars of our own to meet the demand. However, at the present time the rate of imports is dropping and is expected to level off.

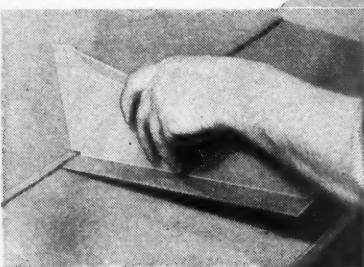
Incidentally, what does 23,000 cars represent? It represents exact-

(Continued on page 94)

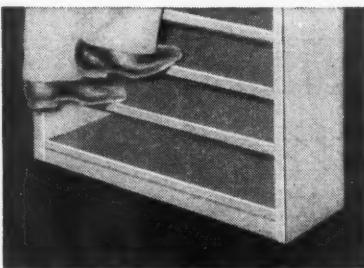
3 Ways to speed parts handling



1 Use parts bins with sliding shelves. By eliminating nuts and bolts, shelving can be changed quickly with bins in place.



2 You can rearrange parts compartments in seconds with snap-in dividers—no nuts, bolts, clamps or screws to bother with.



3 Be sure bottom shelves are reinforced for "stepladder" use to keep aisles clear of objects used as stepladders and provide quick access to upper shelves.



Write Today for Catalog

Illustrating complete line of steel storage equipment for auto dealers and repair shops.

EARLY DELIVERY



HOPE
METAL PRODUCTS, INC.
1502 ROCKWELL AVE.
CLEVELAND 14, OHIO



"You and your scenic routes!"

Cash In with the DELCO SHOCK ABSORBER LINE!

**This Delco
National Advertising
Brings 'Em In!**

This current series of two-color ads running in the SATURDAY EVENING POST is the snappiest, happiest shock absorber service advertising ever devised! It sends serious-minded but smiling customers to the dealer who sells and services Delco shocks. You, too, can have this national advertising support—see your United Motors distributor.



**This Delco
Merchandiser
Simplifies Your
Stock Problem!**

In this sturdily built, caster-equipped stock-and-display unit you can carry one of the three recommended assortments of shock absorbers, bushings, arms, etc., for popular makes of cars, or you can build up your own selected assortment to fit your needs. Catalog service manual, counter display and wall chart are supplied with each unit. Contact your United Motors distributor right away!

**DELCO SHOCK ABSORBERS—
A UNITED MOTORS LINE
Available Everywhere Through
UNITED MOTORS DISTRIBUTORS**



DELCO HYDRAULIC SHOCK ABSORBERS

TIME IS MONEY!!



Can YOU Afford to GIVE IT AWAY?

● You wouldn't stand on the curb and toss money away. Yet that's what you do when you toss your TIME away. That's all you've got to sell, brother—your TIME. You "throw in" what you know.

Figure what you get for a tire repair job—then figure how long it takes you. Do it in *less* time, and your profit goes *up*.

**Save TIME...
Make More MONEY
with the
BOWES METHOD**

Not only is a Bowes "Seal Fast" Chemical Method repair actually a safer, better job . . . but your Bowes distributor can prove that you can do it in *less than half the time* a hot patch requires.

Time is money! Save time . . .

make more money . . .

the Bowes way!

BOWES
SEAL
FAST

**BOWES "SEAL FAST" CORPORATION
INDIANAPOLIS 7, INDIANA**

Facts vs. Fancies

Continued from Page 92

ly one day's production of our industry.

A Swiss motor magazine, *Automobil Revue*, recently published results of a poll of Swiss owners of postwar cars built in U. S., France, England, Czechoslovakia and Italy. U. S. cars easily won first place in the over-all appraisal, followed by cars from other nations in the order given above. U. S. cars were voted most durable, most dependable, most comfortable, having lowest upkeep and repair costs, most speed and most of several minor things.

No one can quibble with the statement that many innovations were used in Europe before they became a part of our car design. European designers always have been credited with skill and imagination. Besides, they can afford to experiment because of their much smaller production volume. Mass production can't stand revolution. It's a process of evolution. But it adds up to tremendous advance over any given period of years.

In Europe they have had front drives and rear engine drives for years. Over here after thorough testing the manufacturers have not yet found justification for such designs in mass production. Mention is made of torsion bar suspension. We know about that too, but the producers are not yet convinced it

(Continued on page 96)



"F'r gosh sakes, Officer—when does this line get to go? (Hic!)"

Only AUTO-LITE

OFFERS CAR AND TRUCK OWNERS EVERYWHERE
THE SENSATIONAL ADVANTAGES OF A

Resistor Type

SPARK PLUG

Now standard equipment
on leading makes of
cars and trucks



Tune in "Suspense" . . .
Radio - Network Thursdays
CBS Television Tuesdays.



Give your customers
all these Advantages

- ★ A SMOOTHER ENGINE IDLE
WIDER SPARK GAP HELPS ELIMINATE OCCASIONAL MISSING.
- ★ IMPROVED GASOLINE ECONOMY
PERMITS BURNING OF LEANER MIXTURES AND REDUCES MISFIRING.
- ★ INCREASED ELECTRODE LIFE
UP TO 200% AND MORE.
- ★ IMPROVED RADIO RECEPTION
REDUCES PLUG INTERFERENCE WITH RADIO, RADAR AND TELEVISION WITHIN 35 MV/M FROM 540 KC. TO 150 MC. AT 50 FT.

★ Because of its low rate of electrode erosion, the new Auto-Lite Resistor Spark Plug permits wider initial gap settings and makes these advantages possible.

ACCLAIMED BY CAR OWNERS COAST TO COAST!

Facts vs. Fancies . . . Continued from Page 94

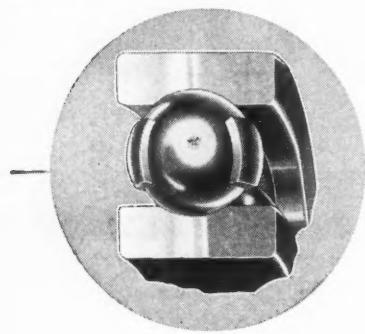
is "cheaper and lighter" than conventional suspensions, despite what the "experts" say.

One of the "expert" hints that manufacturers are stifling progress by not recognizing worthy new developments. One specific example—and the only one mentioned specifically—is a new and revolutionary clutch that has been given the

brush-off. We assume he refers to the Rabinow clutch publicized by the Bureau of Standards. This is a magnetic type of clutch mechanism using a fluid which contains iron filings—in suspension. At the present time it is a laboratory device and has had no commercial exploitation. We don't know yet how it will work in a car.

YOU CAN SEE THE DIFFERENCE IN HOOVER HONED RACEWAYS

The photographs reproduced at the right are magnified one hundred times, so that you can see the difference between ground, polished and honed raceways. Hoover is America's only ball bearing with honed raceways. The process and the special machines for the honing operation, are exclusive, patented, Hoover developments. Hoover honing goes far beyond grinding and polishing to produce a surface that represents the closest approach to absolute perfection obtainable on a commercial basis.



Honed Raceway Features

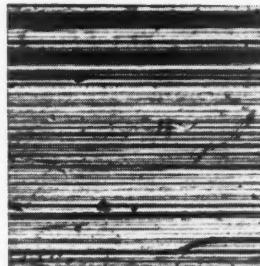
Summed up Hoover honing provides the following results . . .

1. Extreme quietness.
2. Increased load capacity.
3. Extended life.
4. Reduced end play (axial displacement).
5. Reduced radial displacement.
6. Permanence of fit up.
7. Increased resistance to Brinelling.
8. Uniformity of fit up.
9. Freedom from vibration.
10. Perfection of dynamic balance.

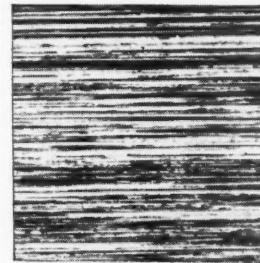
AMERICA'S ONLY

HALL BEARING
WITH HONED RACEWAYS

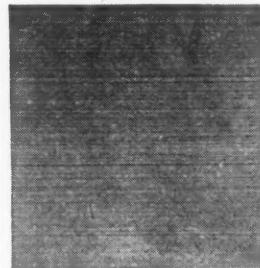
HOOVER BALL AND BEARING CO.,



GROUND RACEWAY SURFACE
(Photographed at 100 Magnifications)



POLISHED RACEWAY SURFACE
(Photographed at 100 Magnifications)



HONED RACEWAY SURFACE
(Photographed at 100 Magnifications)

A request on your Letterhead will bring a copy of the Hoover Engineering Manual.

ANN ARBOR, MICH.

We do know, however, that one of its objectives is to compete with the conventional and time-tried mechanical clutch. We also know that the trend in the motor car industry is to automatic transmissions and away from clutches altogether, at least as we know them.

The clincher, however, is whether the public wants small cars.

This is a topic of debate in all circles. And runs all around the circle. There have been surveys of public opinion; and there have been debates in engineering circles such as the SAE. The general impression is that what the public really wants is a "big car with lots of accessories" for cheap.

Anyone who has been in this business long enough will remember the various attempts to market really small cars. The public simply did not buy.

Before the war, the "experts" used to sing this "small car" tune to the music of a one-string harp like this:

"What the public wants is a \$500 car capable of getting 50 miles out of a gallon of gas."

A real expert used to answer these "experts" with:

"Hell, you've got your figures mixed! What I want is a \$50 car capable of getting 500 miles out of a gallon of gas, something that I can toss in the alley when the gas-tank is empty."

And the one fact, too monumental to be overlooked even by an "expert" with his hat pulled down to his chin, is this: In the 50-odd years that the automobile has been around, the American people produced and used more than 100 million of them while the rest of the world combined turned out only 24 million.



Genuine FORD Parts Bring In MORE Business



New Utility Kit Means More Profit from Ford Wiring Jobs

The time-saving electrical parts merchandiser above was designed especially to meet your Ford service needs. It contains all the parts necessary to handle practically every wiring job in your shop. The four 100-foot spools of ignition wire in popular sizes are well marked for quick selection. The convenient clear plastic box in the sliding drawer below contains an ample supply of insulators, terminals and connectors as well as a special wire cutter-stripper. Attractive two-tone blue design.

When ordering from your Ford Dealer, specify kit number 8A-14294 for plastic box and contents only or kit number 8A-14293 for the complete kit with four wire spools (including plastic box and contents).



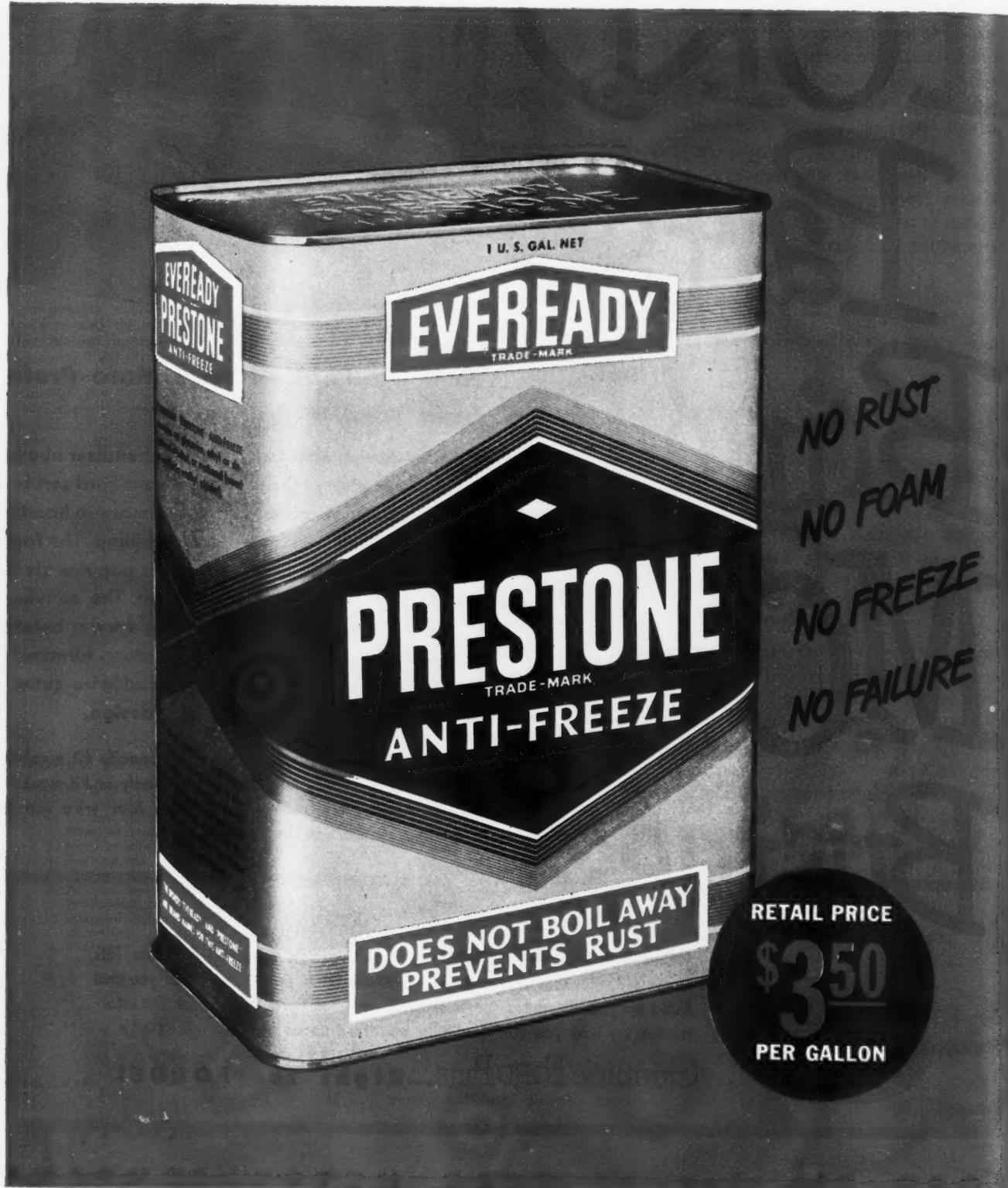
Independent Garages . . . this sign of good business lets everyone know that you stock Genuine Ford Parts. Put it to work for you and build up your Ford service business. See your Ford Dealer for full information on how you can qualify to use this famous sign.

Genuine FORD Parts...Right for FORDS!

F O R D D i v i s i o n o f F O R D M O T O R C O M P A N Y

Order America's N°1 Anti-

Assure yourself an adequate supply



Freeze NOW!

of **PRESTONE**
BRAND

Anti-
Freeze

"PRESTONE" anti-freeze, America's Number One brand, is made to an exclusive formula. No other anti-freeze offers your customers the same guaranteed protection. Year after year, more and more motorists depend on "Prestone" anti-freeze for safe, sure, all-winter protection.

We'll help you do a bang-up
selling job for 1949!

Place your order and take delivery early and get kit containing these dealer aids, plus the new 1949 "Prestone" anti-freeze Protection Chart.



The registered trade-marks "Eveready," "Prestone," and "Trek" distinguish products of
NATIONAL CARBON COMPANY, INC.

30 East 42nd Street, New York 17, N.Y. UCC Unit of Union Carbide and Carbon Corporation

Also
Trek
BRAND

The
Superior,
Volatile-Type
Anti-Freeze

• • •
"Trek" anti-freeze (treated concentrated methanol) contains special inhibitors which prevent rust, corrosion, foaming.

• • •
"Trek" anti-freeze is odorless. There will be no offensive odor in the car or garage when "Trek" anti-freeze is used.

• • •
Real economy. "Trek" anti-freeze goes a long way, yet costs only \$1.25 a gallon.



Better Ring Jobs . . . Continued from Page 41

pistons to their original dimensions.

Piston land clearance should also be checked. On most pistons the land clearance will be OK, but on some aluminum pistons the aluminum alloy has a tendency to "grow" during service. If gouged or shiny ring lands are found, they indicate that the head of the piston has been contacting the cylinder

wall due to piston slap or misalignment. If the mark appears on the thrust side only, probably the piston has been slapping. Unless the marks are unusually deep, the lands can be filed or machined down until the marks disappear. If lands are shiny on the wrist pin side of the piston, it indicates a bent rod, or possibly too much crankshaft

end-play, causing uneven wear.

New oversize pins should be fitted, and the connecting rods aligned. This is very important. Bearings should be checked for pitting and wear and should be replaced if cracked or scored. Crankshaft should be checked for size and out-of-roundness. In some cases bearings are coded for undersize. Always check the code numbers stamped on the bearings and check with the parts man to determine its correct size.

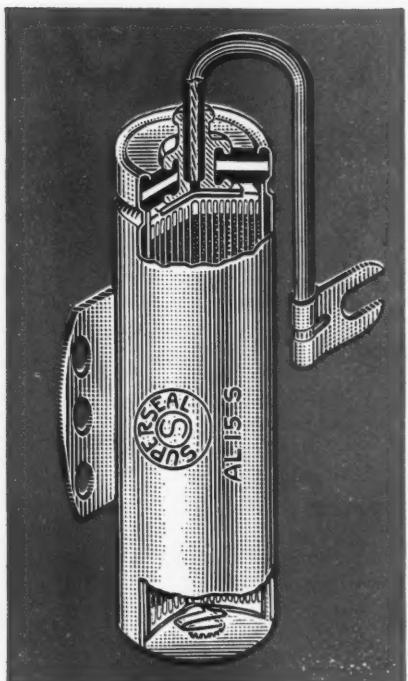
A quick check for cylinder wear can be made by inserting a new ring in the bore, then observing the ring gap at the top in the ring travel area, then pushing it down (using the piston) below the ring travel and checking the gap. The difference in the readings will give the approximate cylinder wear.

Ring gap clearance should be checked on every ring in the package. Make this check with the ring in the smallest diameter of the bore, allowing at least .003 in. per inch of ring diameter. A 3 inch ring should have at least .009 gap in the smallest part of the bore.

Cylinders should also be checked with a dial gage to determine the amount of cylinder wall taper and out-of-roundness. If cylinders have more than .015 in. taper or over .003 out-of-round a reboore job should be recommended. However, replacement rings have often been successful over these tolerances, up to .020 in.

(Continued on page 102)

New! IMPROVED SEAL DESIGN OF THE SPRINGFIELD SUPERSEAL CONDENSERS



- WATER-PROOF
- OIL-PROOF
- ACID-PROOF
- GAS-PROOF
- FUME-PROOF

It provides effective safeguard against adverse climatic or operating conditions. SUPERSEAL CONDENSERS are known to be the best by virtue of their electrical qualities. Each condenser is trade marked and its identifying number is clearly stamped. Packed in multi-colored individual carton, ten cartons to a unit container.



Made by the makers of famous "Superpoint" Tungsten contacts.

SPRINGFIELD ELECTRICAL SPECIALTIES, INC.

120 Wooster St., New York 12, N.Y. • Export Dept. 120 W. 42nd St., New York 18, N.Y.



**ARE YOU ONE OF THE
JOHNS-MANVILLE
BRAKE SERVICE DEALERS
I HEARD ABOUT ON
THE RADIO?**



to our customers...

This plaque can be displayed only by those Johns-Manville Brake Liner Dealers who have officially endorsed the following principles in the interest of protecting their customers.

1 WE AGREE at brake service dealers to continue to ask prices reflecting only a fair return and to make every effort to keep our operations clean as a mirror.

2 WE BELIEVE that the only way we can protect our market share and ensure customer safety is to continue to use our inferior products less often, and we pledge to exert every effort against the threat of second prices.

3 WE PLEDGE that we will continue to follow a policy of ready representation to our customers and the use of the best products we are able to offer and to supply only first-grade materials.

4 WE PLEDGE that we will continue to give our customers a true appraisal of the conditions we find after making a skillful, thorough brake inspection.

5 WE PLEDGE that we will continue to offer only skilled workmanship and will follow the recommendations of the manufacturer in order to assure maximum performance and safety.

6 WE RECOGNIZE our responsibility to the public to represent to consumers in every way with these organizations responsible for greater highway safety and to lend our full support to their efforts to reduce highway accidents and fatalities.



we recommend Johns-Manville Brake Liner

**THERE'S THE ANSWER
MA'M...ONLY J-M DEALERS
WHO HAVE PLEDGED GOOD
MATERIALS, GOOD
WORKMANSHIP AND
FAIR PRICES CAN
DISPLAY THIS PLAQUE**

Are you prepared to give this answer to your customers and prospects?

Millions of motorists are being told about the sound business principles endorsed by Johns-Manville dealers—broadcast over 371 stations of the Mutual Network during "Bill Henry and the News."

These motorists are urged—coast-to-coast—to look for the Johns-Manville dealer

who displays this Plaque . . . and it is displayed only by Johns-Manville dealers.

The plaque is part of a complete packaged public relations and merchandising plan . . . with tried and proved business-building aids . . . exclusively for Johns-Manville dealers.

Get full details of this plan from your J-M distributor . . . write or phone him today.



Johns-Manville

Asbestos

FRICITION MATERIALS

BRAKE LININGS
BRAKE BLOCKS
CLUTCH FACINGS

Better Ring Jobs . . . Continued from Page 100

Cylinders should also be checked to determine whether they are standard or oversize. This can be accomplished by measuring the bore below the ring travel.

On bores that are wavy, good results can be obtained by honing .001 to .002 inch from the cylinder wall and then have pistons expanded to compensate for the extra

clearance causing by the honing.

Worn valve guides should not be overlooked when new rings are being installed. If the inlet guides have excessive clearance, they will allow oil and air to pass into the combustion chamber during the suction stroke. Observing the amount of carbon under the valve head usually gives an indication of how

much oil is being drawn up. If valves have heavy deposits of carbon underneath the head, the valves and guides should be replaced or some type of valve stem packing should be installed. Worn intake guides can also cause poor engine idling due to air leaking past the valves. A quick check for faulty intake valve guides can be made before the engine is torn down by removing the valve covers, starting the engine and squirting oil on the camshaft end of the intake valve stems. If the clearance is excessive, the exhaust will smoke. Another check after the head is removed is to place the bottom of a dial gage on the head of the valve. If side movement is over .004 in., it would be considered excessive. On overhead valve engines, there are many ways to prevent the oil from getting down the stems. Deflectors or umbrellas can be used successfully, also some mechanics prefer to plug the holes in the rocker arms with lead pellets or solder and then drill small holes to meter the oil.

Much time should be spent cleaning the inside of the engine, as dirt and grit are the primary causes for wear in any motor. Engines should be cleaned with a good cleaning solution, then blown out with compressed air. The breather system should also be thoroughly cleaned.

(Continued on page 104)

NEAPCO 1500-1600 SERIES POWER TAKE-OFF JOINTS



For dump bodies, winches, road graders, farm equipment, etc.

Selected as standard, original equipment by several leading manufacturers. Rugged, precision built. High torque capacity, long service life. End yokes solid forgings. For slow speed intermittent service—specify 1500 Series plain hardened steel bearing and bushing. For increased load and continuous service use 1600 Series needle roller bearings. 5 popular bore sizes are stocked by your Neapco Jobber. Other bore size combinations are available. He can order them for you.

See your Neapco Jobber for these fine PTO's.

Neapco Products Inc.



Pottstown, Pa.



"Tell the jury the extent of your injury when you claim that my client's car hit you."

If
car-
valves
d or
aking
take
engine
the
faulty
made
on by
erting
n the
valve
xces-
An-
s re-
of a
valve.
l in,
essive.
there
e oil
De-
used
anics
the
ts or
es to
lean-
s dirt
s for
should
anning
com-
ystem
aned.

GREATEST...

ENGINE-SAVER

since the oil filter

FRAM Positive Crankcase Ventilator



This great new Fram *first* provides positive crankcase ventilation for the first time in automotive history. It removes corrosive "blow-by" gases before they form sludge, corrode bearings, stick rings and valves, reduce lubricating qualities of oil. It keeps out the dirt, dust, grit and abrasives normally drawn into an engine's crankcase. It controls crankcase ventilation at all speeds.

The Fram Positive Crankcase Ventilator was developed in Fram's famous engineering laboratories. It has been road-tested . . . proved . . . and like all Fram Filters, guaranteed.

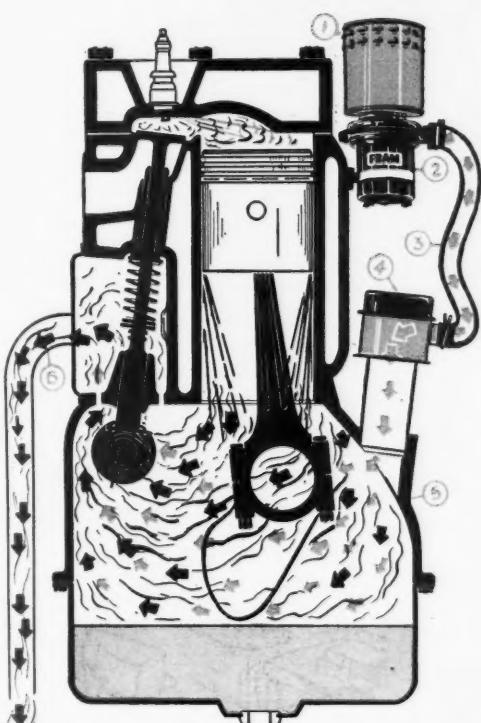
For Stop-and-Go Drivers, it removes condensation-forming vapors in cold engines on short runs . . . stops crankcase contamination in hot engines in heavy traffic by expelling "blow-by" gases as they form.

For Delivery Trucks in door-to-door service, it ventilates the crankcase while the truck idles at the curb.

For Taxis, Fleets, it prevents engine fumes from seeping into driver's compartment, lengthens oil life, adds miles to engine life.

For Heavy Trucks and Buses, it clears the crankcase while engines race on grades . . . cuts high-speed, oil-loss.

here's how it works . . .



1. Dust-laden air is filtered clean as it passes through FRAM-TEX filtering media in Fram Crankcase Air Filter.
2. Electrically-driven blower starts the moment ignition switch is turned on. Provides a constant, uniform flow of clean air through the crankcase regardless of engine or vehicle speed.
3. Flexible hose connects unit to special oil filler cap assembly.
4. Cap assembly replaces conventional cap on oil filler pipe. Top is easily removable for adding lube oil.
5. Uniform flow of clean air circulates through crankcase, sealing against entry of dirt from all points.
6. Ventilation carries sludge-and-acid-forming "blow-by" fumes and vapors out through road draft tube.

COMPLETE ENGINE PROTECTION! Now four Fram Filters seal out engine-killing dirt, dust, grit, sludge and abrasives at every vital point.

Fram Oil & Motor Cleaner • Fram Carburetor Air Filter • Fram Gasoline Filter
Fram Positive Crankcase Ventilator

FRAM CORPORATION, Providence 16, R. I.
In Canada: J. C. Adams Co., Ltd., Toronto, Ontario

FRAM



OIL • AIR • FUEL

FILTERS

Better Ring Jobs . . . Continued from Page 102

The cooling system should be checked over carefully. Reverse flush the radiator and cylinder block. In engines equipped with water jacket tubes, the tube should always be replaced. When these tubes become rusted, valve trouble usually results from lack of proper cooling around the seats. Where heavy lime deposits have formed in

the block, the block should be filled with a 20 per cent solution of hydrochloric acid and let sit overnight. Flush out thoroughly and add a good rust inhibitor to stop the action.

Radiator hoses and fan belt should be checked and replaced if necessary.

The water pump can be checked

without removing it by squeezing the top hose and at the same time racing the engine. If no pressure is felt in the hose, the pump is probably faulty. Usually the impeller vanes will be found badly rusted or corroded. If the bottom hose pulls together when the engine is raced, it also should be replaced.

The manifold heat control valve not operating properly can also cause plenty of trouble. Lack of power at top speed usually shows up when this valve is stuck in the open position. If the valve is stuck in closed position, the engine will be slow in warming up.

Flexible oil lines are inexpensive and should be replaced on every ring job.

The breather system should not be overlooked. If the breather system is not functioning properly, oil leaks usually develop at the rear main bearing and timing case cover from pressure building up in the crankcase.

The carburetor float level should be checked on every job as a high float level will result in a rich mixture and will account for crankcase dilution and rapid ring wear, and a low float level will cause engine to run lean which will tend to burn valves.

On cars equipped with combination fuel and vacuum pumps, the vacuum side of the pump should be checked for leaks in the diaphragm. If the diaphragm is bad, oil will be sucked out of the crankcase into the combustion chamber. A quick check can be made by disconnecting

(Continued on page 106)

Put Your Money on the

Thermoid Line

**Fine
Merchandise
...
Great
Merchandising**



The top quality hose made to original equipment specifications. Thermoid Straight and Curved Radiator Hose is built to resist any deterioration and is impervious to chemicals and anti-freeze.

They're conveniently packed and can be displayed on the slickest merchandiser in the trade.

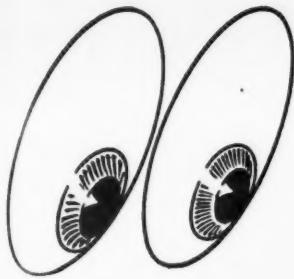
The Thermoid Line

Brake Linings • Clutch Facings • Fan Belts
Radiator Hose • Hydraulic Brake Parts and Fluid
Car Mats • Thermoid Precision Process Equipment
Complete Brake Service Departments

Thermoid Company, Trenton, New Jersey



"They're known near and far as 'Far' and 'Near'."



LOOK to the leading jobbers for the LEADING LINES!



YOU'RE RIGHT WITH

Packard
REG. U. S. PAT. OFF.
TRADE MARK

PACKARD ELECTRIC DIVISION
GENERAL MOTORS CORPORATION
WARREN, OHIO

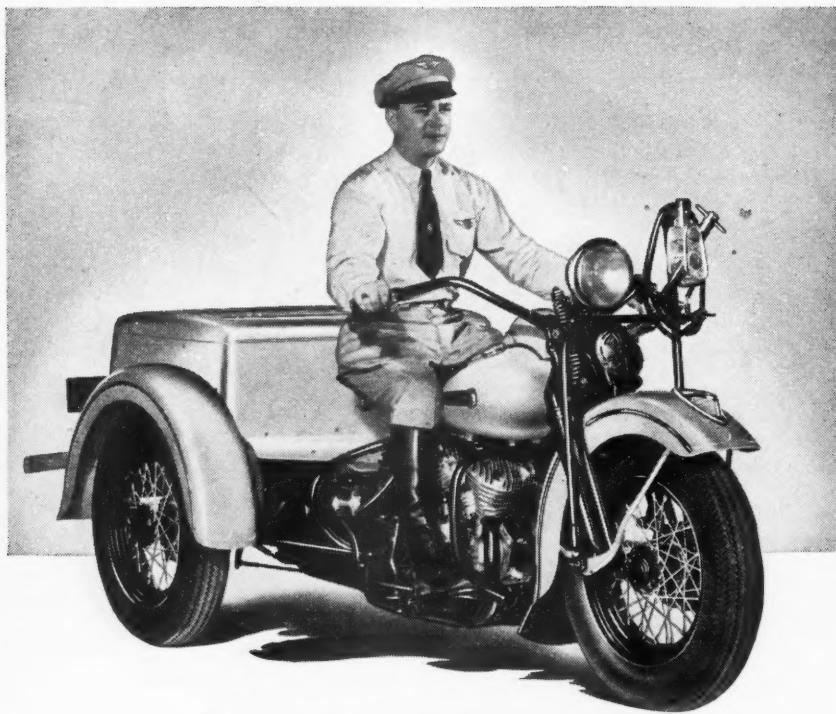


The jobber who handles Packard cable does so because quality is his stock-in-trade and because quality is the sole basis on which Packard cable is sold. (There are no tie-in inducements, no special "deals" of any kind with Packard.)

You can accept the Packard jobber's insistence on quality as evidence of his desire to be of greatest service to his customers . . . and you can use it as a guide in the selection of a jobber worthy of your business.

FOREMOST BUILDER OF AUTOMOTIVE AND AVIATION WIRING

Now more than ever -- YOU NEED A BUSINESS-BRINGING **SERVI-CAR!**



Keep Your Shop Busy By Keeping Your Customers Coming Back

IT'S those old customers who are important now. But why wait for them to come in? Go out and get 'em — with SERVI-CARS! Give your customers that prompt, speedy Servi-Car service that brings satisfied smiles . . . keeps your cash register ringing! Now is when *that* counts! Servi-Cars help you maintain profits in many other ways: They enable you to regulate work flow, removing finished jobs and bringing in new ones at scheduled hours. They save time in parts pickups, bring many sales opportunities to your new car and accessory departments. They advertise you favorably wherever they go. For complete information see your Harley-Davidson dealer, or write to

**HARLEY-DAVIDSON
MOTOR COMPANY**
DEPT. MA, MILWAUKEE 1, WISCONSIN

FREE ad service to Servi-Car owners
Newspaper mats, cuts and local merchandising aids are available to Servi-Car owners.



Better Ring Jobs Pay Off

Continued from Page 104

the vacuum line at the intake manifold, if any oil is apparent at the fitting or line it is an indication of a faulty diaphragm. In some cases the cylinder opposite the fitting in the manifold will not fire at idle speed due to the air being drawn in.

The valves must be properly timed. Late valve timing can cause excessive oil consumption, overheating and loss of power. On most re-ring jobs a new timing chain should be recommended as they have a tendency to stretch and wear.

On all jobs the rear main bearing cap should be removed and a new seal should be installed. Also the groove and the oil return hole in the cap should be thoroughly cleaned.

Points worth checking on different engines to insure a more satisfactory job.

Chevrolet:

Check the oil to the rocker arms. Install valve packing or caps on top of the valves to deflect the oil. Make sure the oil return hole in the head is open. Make sure the oil lines in the pan are aimed properly. Special gages are available for checking these. Check the oil line that feeds the rocker arms where it comes out of the block for water leakage. Oil leak at the distributor can be corrected by removing the oil pump and cleaning out the oil return holes and by removing the sludge from the oil pump housing. This housing is machined flat on one side.

Buick:

Install a deflector over the rocker arms to prevent oil from running down the valve stems such as used on the later models.

Ford, Mercury, & Lincoln:

On these jobs always make sure the oil baffles are in place, otherwise oil will be thrown up on the valve stems. Always inspect the oil pressure relief valve and spring. If the spring is weak or the ball worn or pitted they should be replaced. If the relief valve is faulty a quantity of oil will bypass the bearings and run down the front of the engine, a

(Continued on page 110)

HULBERT'S

Smash-Proof

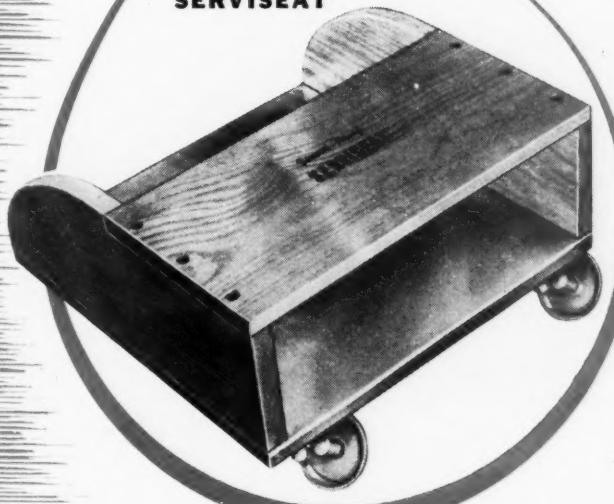
Trade Mark

DIPPSY-
DOODLE
CASTERS

PAT.
PENDING



Smash-Proof
SERVISEAT

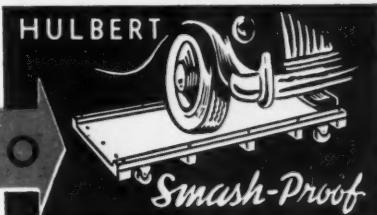


SLIDES UNDER ANY MAKE OF CAR EASILY
Keeps your most used hand tools and miscellaneous small parts where you can put your hands on 'em when working under a car. Built to take socket wrench tray. Metal covered bottom prevents soaking up grease. And of course the Serviseat rolls on Dippy-Doodle Casters. Hulbert's Smash-Proof Serviseat is the answer to your under-the-car "where's that wrench" question. 18 inches square by 8 inches high with low "head room". Only \$6.95 delivered.

FOR BRAKE TYPE *Smash-Proof* CREEPERS
AND *Smash-Proof* SERVISEAT

Here's the new Hulbert *Smash-Proof* Dippy-Doodle Caster with a case-hardened wheel of small diameter that out wears any saucer-type caster you ever saw . . . Rolls easier and more freely on uneven floors too! With the roll-over capacity of an 8 inch wheel, Dippy-Doodle Casters put the top of your Brake-Type *Smash-Proof* Creeper only 2 1/4 inches from the floor. Strong as the famous Hulbert 888 *Smash-Proof* Casters, Dippy-Doodle Casters utilize a connecting block (Patent Pending) which permits pintle pins fully 1/8 inch larger in diameter than you'll see on any other saucer-type caster. Dippy-Doodles weigh only one fourth as much as ordinary saucer-type casters, yet they'll stand running over because of their 50 to 100% extra strength. Adaptable to any conventional type creeper without special mounting. Used on No. 18 and No. 21 *Smash-Proof* Creeper, with no extra cost.

HULBERT MANUFACTURING CO. • Ashtabula, O.



HIGHER

WITH
PERMIUM



THM O

ANTI-FREEZE

NOW AT A
NEW LOW
PRICE!

\$7.00
PER GALLON
RETAIL*

*Slightly higher in a few mountain and western states.

More—for less! Thermo now offers a new rockbottom price . . . And Publicker's new ingredient, *Premium*, means that your customers can enjoy all-weather, all-winter protection equal to any premium-priced anti-freeze. Thermo is a quality product—with no toxic

substances. There will be plenty of Thermo, too, to meet every user's needs. And to help you move Thermo fast we've planned smashing ad programs, including billboards and newspapers in your area. Cash in on this *sure* profit maker. Stock—push—sell Thermo!

THERMO DIVISION
PUBLICKER INDUSTRIES INC. • 1429 WALNUT ST., PHILA., PA.

NO BETTER ANTI-FREEZE AT ANY PRICE!

Better Ring Jobs . . . Continued from page 106

common cause for high oil consumption.

Hudson:

The oil tray has a screened drain hole which should be cleaned. This hole provides drainage for the baffle plate and prevents the oil from getting too high and being thrown against the cylinder walls by the crankshaft. On some older models

it will be necessary to drill this hole in the baffle plate.

Packard:

Packard pistons should be installed with the piston slot facing the camshaft.

Pontiac:

When installing the lower oil ring follow the manufacturers' recommendations closely.

Middle Atlantic Regional To Be Held May 23-26

Plans for the Middle Atlantic Regional Automotive Show, to be held May 23-26 in Philadelphia's Commercial Museum, are developing rapidly, according to George B. Shearer, Jr., of Gaul, Derr & Shearer, president of the show.

Already more than 200 automotive manufacturers have signed up for display space on the floor of the museum, and over 70 wholesalers, covering 69 trading areas in the Middle Atlantic region, are participating.

Dealers, truck and bus operators, and owners of service stations and independent repair shops can examine and compare the new products of all the major automotive manufacturers under one roof.

Southwest Automotive Show Draws Over 13,000

The 7th Annual Southwest Automotive Show was held at State Fair Park in Dallas, Tex., recently. Attendance totaled 13,116. It was evident that both the service trade guests and the sponsoring jobbers were serious minded and intent on getting as much information about the various products on display as they could. Sales meetings were well attended and the lectures and films put on by the various parts, equipment and accessory manufacturers attracted good sized gatherings.

Parts and Equipment Show Held in Providence, R. I.

The Automobile Wholesalers of Rhode Island launched its first annual Automotive Trades Show on April 5, 6 and 7 in Providence. It ran only in the evening, between the hours of 6 p.m. and 10:30 p.m. The attendance of over 5,000 for the three evenings and the excellent interest shown in the 125 booths indicates that the after-business hours are quite suitable for jobber shows.

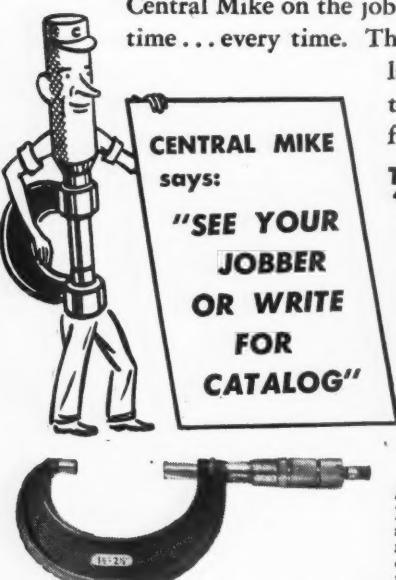
The show committee was headed up by Benton Rosen, of Franklin Supply Company; Walter W. Ortner, acted as show manager. The show committee consisted of sixteen participating jobbers, who worked in cooperation with manufacturers.

YOU'RE ALWAYS RIGHT
WITH
CENTRAL MIKE!
FOR MOTOR OVERHAUL

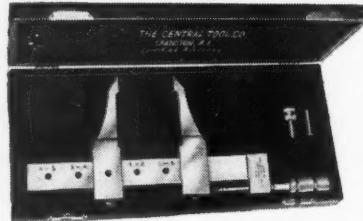
Experienced auto mechanics know there's no substitute for CENTRAL Certified Accuracy Micrometers! These dependable tools provide accurate measurements for fast, high quality repairs. With

Central Mike on the job, it's easy to fit repair parts the first time... every time. That's why Central Micrometers, the largest selling micrometers in the automotive field, are the overwhelming favorites for motor overhaul work.

THE CENTRAL TOOL COMPANY
462 WELLINGTON AVE., CRANSTON 10, R. I.



CONNECTING ROD JOURNAL
MICROMETER No. 350 RL
Range 1½" to 2½"—measures rod
journals in all cars and trucks. Gradua-
tions on under side of barrel facilitate
reading dimensions when tool is
in measuring position. Also available
in Metric measure.
Furnished with ratchet, locknut, and 2"
standard.



MAIN JOURNAL MICROMETER No. 510 MBM
Range 0" to 5". Special shaped measuring points and wide range for measuring any crankshaft main journal to 5" diameter without removing crankshaft from engine. Also useful for measuring many other parts in the automotive shop. Furnished with standard. Also available in Metric measure.

CENTRAL
Certified Accuracy
MICROMETERS

There's a Central Micrometer for Every Automotive Use



Swing Along With Brother Grant!

MAKE MORE MONEY THE M-S WAY BY

Painting More Cars Faster!

**Eight Quick Reasons
to Switch to Martin-Senour
Hi-Solids Lacquers and Synthol Enamels**

- 1 Higher painting profits
- 2 Exact color match to car-maker's specifications
- 3 Top quality, top durability, top beauty
- 4 No time wasted mixing or matching
- 5 Patented pour-top can prevents waste
- 6 No come-backs, no headaches
- 7 Easier to handle . . . jobs out on time
- 8 Available everywhere... call your N.A.P.A. jobber



Now Brother Grant has time to perfect his swing on the local links. That's because he learned how to cut labor costs, eliminate mixing time and boost painting profits with ready-mixed Martin-Senour finishes. His shop paints more cars faster than any other place in town! And every job is *right* the first time because M-S finishes are factory-matched to the car maker's own specifications. Just check the color, make and model in the handy M-S catalog, then phone your N.A.P.A. jobber. Start profiting from the M-S way today. Call your N.A.P.A. jobber now!

MARTIN-SENOUR

2520 South Quarry Street, Chicago 8, Illinois

Factory Packaging

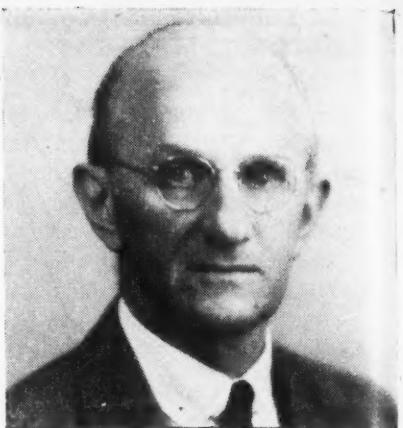
is the only Positive Control from Factory to Finisher.

Julian Chase Retires As Chilton Co. Vice President

After 50 years of association with the automobile industry and publishing business, Julian Chase has retired as a vice president and director of Chilton Company and directing editor of MOTOR AGE.

After graduating from Brown University in 1899, he entered the automobile business with the United

States Automobile Co. He later became automotive sales manager of the Ward Leonard Co., engaged in developing, designing, building, racing and selling automobiles. In 1904 Mr. Chase had become a well-known writer of technical publications and was appointed editor of *The Horseless Age*. In 1905 he became editor of *Motor* and *Motor Boating*, and in 1915 was made a partner and editor of *The Horseless Age*. This magazine was later



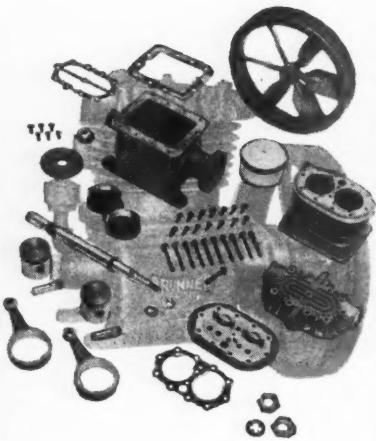
merged with the Class Journal Co., a division of the United Publishers Corp. which eventually became the Chilton Company.

In World War I Mr. Chase was on the War Department's General Staff organizing training centers for transport drivers. In 1923 he became directing editor of the *Chilton Class Journal*, in 1927 business manager of *Automotive Industries*, and in 1933, directing editor of the Automotive Division of the Chilton Co. Having been a member of the board of predecessor companies for many years, Mr. Chase was elected a director of the Chilton Co. in 1934, and was elected a vice president in 1945.

Julian Chase is a past president of the National Conference of Business Paper Editors; member of the Society of Automotive Engineers (1908); member of the board of directors of the Automobile Old Timers, from whom he received a citation for contributions to the development of the automobile; member of the Antique Automobile Club; the National Aeronautics Assn.; and the Brown Engineering Assn. He was special department editor of Funk and Wagnall's new standard dictionary in 1913.

BRUNNER
SINCE 1906 AIR helps you serve better

Cast a Critical Eye on these Compressor parts!



Here, actually, is the operating efficiency of an air compressor. The parts are few... assembly is relatively simple. It's what you can't see in these parts that is so vitally important in measuring the service worth of an air compressor...proven engineering, durability of metals and the watch-like precision of manufacture.

Before final selection of an air compressor, talk to a Brunner dealer. Ask for evidence of volumetric efficiency. Compare operating speeds. Get the facts on first cost, service life, dependability, operating economy. Make better use of air operated equipment...put Brunner Air Compressors on the job.

BRUNNER MANUFACTURING CO.
Utica 1, New York, U. S. A.

- Air power tools add to shop income. The Brunner Catalog suggests many applications and shows air required. Sent on request.

AIR COMPRESSORS
...a size and type
for every purpose

BRUNNER
SINCE 1906

SINGLE STAGE $\frac{1}{4}$ HP. TO 2 HP.
TWO STAGE $1\frac{1}{2}$ HP. TO 15 HP.



"How do ya' like that? Only 9:30 and Pete's exhausted already."

BIGGEST

Unsurpassed
Triple-Action!

"Anti-Acid?" YES!
"Detergent?" YES!
"High V. I.*?" YES!



QUART

OF PROTECTION

YET!



Free-Flowing—
Full Protection—
Maximum
Economy!

It's better-than-ever lubrication for motorists—will do a bigger-than-ever prestige-building job for you!

Sell New Mobiloil for greater customer satisfaction... your biggest asset for steady repeat business—long-range profits!

SOCONY-VACUUM OIL COMPANY, INC., and Affiliates:
MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORPORATION



* High Viscosity Index
—the lubrication engineer's term for high resistance to change in body under extremes of heat and cold.

More than Ever—It Pays to Sell the

World's Best Seller

Indianapolis Preview . Continued from page 45

Winfield 183 cu in. V-8 is supercharged, bringing the hp rating up to 550. The Novi Specials will have these V-8 type engines running up over 8000 rpm with inline style. Distribution of weight is in front of the front wheels.

The Novi Governor Specials have torsion bar suspension on the front and semi-elliptic on the rear. Air-

flow is through the radiator directly underneath the car, instead of through the engine compartment as in the conventional models.

Duke Nalon will drive one car. In the 1948 race he missed a win by running out of fuel a few miles from the finish. The other Novi will be driven by Rex Mays, who, although never having driven a

front drive car, should have no difficulty in mastering this one.

Lou Moore will again have the two front drive cars, driven by Mauri Rose and Bill Holland, who have won first and second place respectively for two years. These Blue Crown Spark Plug Specials, with Meyer & Drake 270 cu in. Offenhauser engines, will be serious contenders again this year.

Airflow on the Moore cars is into the engine compartment. The brakes are located against the differential housing, while the Novi cars have them on the wheel.

The front drive car, in my opinion, has an advantage on the 2½ mile Indianapolis track, which means that several other important contenders will bear watching in this year's race. Front drive cars can take turns faster, while rear drive cars must decelerate and check down speed or else they drift into the wall. Also, front drive cars pull the chassis around the corner and give better control. This characteristic, I believe, gives front wheel drive cars a definite 5 mph advantage.

In addition to his two Blue Crown Spark Plug Specials, Moore is entering a third car, the Blue Crown Spark Plug Special, Jr. It will feature a rear transverse spring system, with the transverse spring supported by the cross member back of the quick-change rear axle. Two sets of shock absorbers are used—friction and hydraulic types. The car has a Meyer & Drake four-cylinder 270 cu in. non-supercharged engine.

(Continued on page 116)

AIRCO No. 7



...a smooth-flowing rod of uniform quality for all-around garage gas welding

Here's a low-priced, mild steel rod that's especially designed for general-purpose, everyday welding around the garage. Welds made with the Airco No. 7 will develop up to 50,000 psi tensile strength, and high elongations of 25-30%.

This exceptional rod is just one of the high quality accessories and supplies immediately available from your local Airco Dealer's complete stock of gas and arc welding gloves, goggles, helmets, fluxes, rods, hose and electrode holders. In fact, everything you need — promptly, from stock — for oxyacetylene and electric arc welding.

In addition to this extraordinary service, when you buy from an Authorized Airco Dealer, you are assured quality merchandise, at lowest possible prices . . . so, get in touch with him today — ask him about his complete line of gas and arc welding accessories and supplies.



This Emblem Identifies Your Airco Dealer

AIR REDUCTION

Offices in Principal Cities
Plus A Nationwide Dealer Organization

Headquarters for Oxygen, Acetylene and Other Gases...Carbide...Gas Cutting Machines,
Gas Welding Apparatus and Supplies...Arc Welders, Electrodes and Accessories



"It happened in the winter of '37—I was driving down that road in a driving snow storm and—!"

GRIZZLY SAFTIBOND PASSENGER CAR SEGMENTS

The Lining With The Bonding Agent Applied At The Factory. All the long wear, dependable features of Grizzly drilled Syncro Sets—in ready for bonding segments! It's easy to handle Grizzly Saftibond because bonding agent is pre-applied. Eliminates handling, deterioration of bonding agent and time-consuming preparation of lining.

Grizzly Bonded Brake
Lining Demonstration
Attracts Crowds at
1947 A.S.I. Show

CHICAGO, ILLINOIS, December 10,
1947. Bonded brake lining demon-
strations at the Grizzly Manufactur-
ing Company booth at the A.S.I. Show
proved to be a "stopper" today as
thousands of A.S.I. Show visitors

Saftibond*

**SINCE '47 GRIZZLY HAS BEEN READY
TO SERVE '49 MODELS**

Bonding something new? Not with Grizzly!

Back in 1947 Grizzly announced and produced

Saftibond. Today, Grizzly's pioneering is paying off. Brake service men everywhere find Grizzly an authoritative, helpful source for information on bonding brake linings—on bonding equipment and techniques, as well as materials.

Get the latest word on bonding—how to serve new models and old—call your Grizzly Distributor today. He will be glad to tell you about the important things we've learned here at "Bonding Headquarters." *Grizzly Manufacturing Company, Paulding, Ohio.*



**GRIZZLY ALUMINUM BACKED
HEAVY DUTY BLOCKS**

Aluminum sheets are bonded to the shoe side of finished blocks. In addition to increasing overall block strength, the aluminum liner provides uniform contact of block to shoe—provides more effective heat dissipation, greater holding power and resistance to breakage at bolt holes.



Bear in mind . . . ask for . . .

*Copyright 1947 Grizzly Manufacturing Company

GRIZZLY BRAKE LINING

FILL IN AND MAIL TO
GRIZZLY MANUFACTURING COMPANY, PAULDING, OHIO

I'm curious to see what Grizzly bonded lining looks like. Send me a piece of a Saftibond segment. (No obligation.)

Name _____

Company _____

Address _____

City _____ State _____

Indianapolis Preview

Continued from page 114

Pat Clancy's six-wheel car, which ran in the 1948 race, is the first tandem type to appear at Indianapolis. This car should be watched for the four-wheel drive allows a greater portion of power to be transmitted to the track, resulting in higher average speeds. Engine horsepower seldom is applied to its full efficiency due to tire slippage.

Clancy has strengthened the weaker parts of his car which kept him out of the money last year.

Drive arrangement on this unique model has one propeller shaft going to the forward axle and then a shorter propeller shaft following to the rear axle. Rear suspension is through short quarter elliptic springs in the rear, and

transverse in the front. Braking is on all six wheels and Meyer & Drake 270 cu in. engine is used.

Several foreign cars, which are always a definite threat, will be entered this year. A group of Indianapolis businessmen are sponsoring two super-charged Maserattis, one driven by the late Ted Horn in the 1948 race and a new one with greater hp. These cars have good handling qualities, and when properly tuned are capable of high sustained speeds. Easy handling characteristic is attained by the balance resulting from front torsion bar suspension independently sprung. These cars have been engineered for road racing in Europe and incorporate many of the features of Continental road racing cars.

The Bowes Sealfast car will be an important runner again in this year's race. Major changes on this car are use of torsion-elastic suspension, front and rear, instead of torsion bar, to improve handling.

The Kurtis-Kraft entry this year will be the same car that finished 9th in 1948. Some modifications have been made. A conventional straight-through tube rear axle replaces the DeDion type rear axle. A portable starter replaces the starter mounted on the engine. A larger Firestone rubber fuel tank with a 62 gal. capacity has been installed.

The Twin Coach Special entered by Lou Fageol has the same
(Continued on page 118)

LOCKS FREEZE AT 90°

DUST FREEZES LOCKS!

FOR LOCKS THAT STICK OR RUST OR FREEZE, THE BEST PROTECTION IS

LOCK-EASE® Graphited LOCK FLUID

RAIN OR SHINE - HOT OR COLD - LOCK-EASE GIVES YEAR-ROUND PROTECTION

AMERICAN GREASE STICK CO.
MUSKEGON, MICHIGAN
ORDER FROM YOUR JOBBER —

LOCK-EASE Graphited LOCK FLUID
PROTECTS AGAINST FREEZING-RUST-WEAR

CONTROLLED FLOW CAN

THIS WAY FOR DROPS

THIS WAY FOR PRESSURE STREAM TO FLUSH OUT DIRT

LIST PRICE 35¢
PACKED ONE DOZEN WITH COUNTER DISPLAY



"No, no! Mustn't pull in Daddy's fish!"

"SPEED, QUALITY, DEPENDABLE SERVICE"

the new century SANDER by STERLING

Like the famous 20th Century Limited of the New York Central Railroad . . . the new Sterling Century Sander gives you speed, quality and dependable service.



only \$82⁵⁰

Feather-edge, remove lettering, prepare metal surfaces for finishing with the new low cost Sterling Century Sander! Only 4 inches high, the Century gets into those hard-to-reach spots. Weighing only $4\frac{3}{4}$ pounds it permits easy, one-hand operation. A powerful, durable tool, built for long, continuous use . . . Sterling performance and quality at low cost! Send coupon for new Century catalog now.

The Century's pad speed is 5000 r.p.m.—plenty of power to assure fastest, most uniform sanding. Pad quickly loads with $\frac{3}{8}$ of standard abrasive sheet.



STERLING TOOL PRODUCTS CO.

1334-H Milwaukee Ave., Chicago 22, Ill.
Canadian office: Terminal Warehouse, Dept. 16
Send me the new Century catalog.

FIRM _____

ATTENTION _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Sterling . . . Manufacturers of the Century and Model 1000 Portable Electric Sanders and the Speed-Bloc Portable Air-Driven Sander

Indianapolis Preview

Continued from page 116

engine used in win Coach buses, with a few minor adaptations for racing. It is a six-cylinder single overhead cam type, designed by Ed Winfield, and in my opinion, is one of the most efficient gasoline engines in the country. The design of its combustion chamber, exhaust and intake ports, higher compression and better distribution, results

in high volumetric efficiency and increased horsepower.

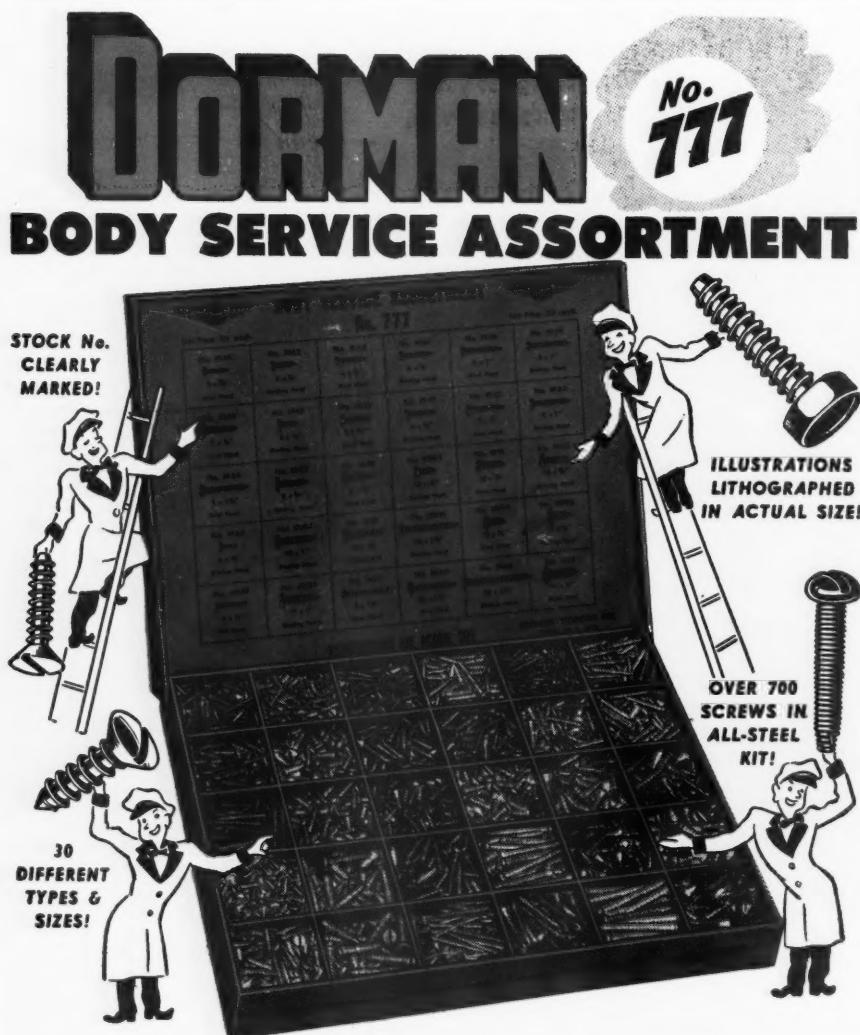
The balance of the entries will be made up of cars that have been built primarily for the 100 mile championship races. These are all rear drive cars. In order to adapt them for the 500 mile classic, the wheelbase is usually lengthened about 4 in., in such a fashion that

the car can be readily converted for use in either the 100 or 500 mile races.

Reviewing engines for the race, it is significant that very few major changes have been made in engine design. The Meyer & Drake Offenhauser has been an old standby. Of the 33 cars that will run the race this year, about 75 per cent will be equipped with the Meyer & Drake engine. The balance will be engines originally designed by Bud Winfield, Ed Winfield, Art Sparks, plus a few foreign cars. Although chassis development has progressed over the years, engine improvements have been retarded primarily because of the high cost of development work. The racing fraternity would like to see—and would encourage—further development in engines. In my opinion, the trend is definitely toward smaller engines. As an indication, GM is now producing two engines, the Cadillac and Oldsmobile "Rocket," which are smaller displacement engines with greater horsepower. Engines of this type have incorporated many of the principles of racing type power plants.

There is a possibility that the smaller Meyer & Drake Offenhauser can be supercharged for use in the formula type race. With the advent of these smaller engines, it is logical that chassis design will be changed.

In a brief description of this type it is difficult to mention all of the cars entered this year. All have a good opportunity of finishing up front.



THE DORMAN BODY SERVICE ASSORTMENT No. 777 is a complete assortment of sheet metal screws designed to meet the needs of auto body shops, large garages and fleet maintenance repair shops. This kit contains over 700 sheet metal screws of 30 different types and sizes. The container is made of heavy steel with each size and type of screw in individual sections. A diagram showing the position, stock number, exact dimensions and type of head is in clear view when the assortment is open. All illustrations on this diagram are reproduced in life size so anyone can quickly determine the exact size and number of any popular sheet metal screw. For your convenience, refills for this Assortment are now available in handy Dorman Ready-Paks.



DORMAN PRODUCTS Inc.
CINCINNATI, OHIO



"But Miss Anderson, we've got to have a flag!"

for
mile

race,
major
engine
offense.
y. Of
race
will be
Brake
gines
Win-
plus
chass-
essed
pro-
arily
develop-
nity
en-
in
trend
nes.
pro-
Villac
are
with
of
any
type

the
en-
use
the
, it
be

ype
the
e a
up

You're All Set

with

UNITED MOTORS LINES

Yes, you're all set and ready to go when you put United Motors Lines to work for you.

No other lines in the world give you such a big, growing market. United Motors Lines are *original equipment* on America's most popular cars.

What's more, each line is *complete*...provides parts for older model cars as well as fast-moving parts for new cars. You won't have to turn away business for lack of the right part with United Motors Lines.

You're all set for service information, too . . . practical, easy to use, and right up to the minute.

With *sales and merchandising programs* to "bring 'em in" with hard-hitting *national advertising* to create customer acceptance . . . you really strike pay-dirt when you handle United Motors Lines.

Talk it over, today, with your United Motors distributor. He knows what lines are best suited to your particular operations. Or you can write to us direct.

UNITED MOTORS SERVICE

Division of General Motors Corporation

General Motors Building, Detroit 2, Michigan



DELCO Batteries
AC Fuel Pumps, Gauges
and Speedometers
DELCO Auto Radios
SAGINAW Jacks
MORaine Engine Bearings

DELCO Radio Parts
HYATT Roller Bearings
DELCO Home Radios
and Television
INLITE Brake Lining
DUREX Gasoline Filters

HARRISON Heaters
DELCO Shock Absorbers
NEW DEPARTURE
Ball Bearings
GUIDE Lamps
HARRISON Thermostats

DELCO-REMY Starting,
Lighting and Ignition
KLAXON Horns
HARRISON Radiators
ROCHESTER Carburetors
DELCO Hydraulic Brakes

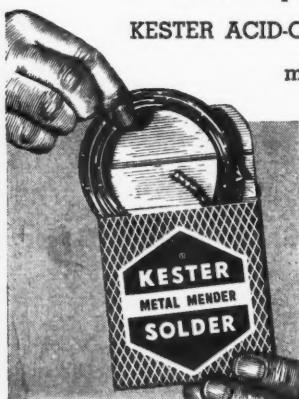
Kester Flux-Core Solder

...The Mechanic's SILENT PARTNER



Good mechanics know that

Kester Acid-Core Solder will do those numerous repair jobs faster and better. Kester Solder, in 1, 5 and 20-lb. spools, is the most important item in your shop. Insist upon KESTER ACID-CORE SOLDER from your jobber...the mechanic's standard for over half a century.



METAL MENDER AND RADIO SOLDER AVAILABLE IN HANDY "TOOL KIT" PACKAGE

A convenient size for those "away from the shop" jobs, or as a quick turn-over resale item that sells on sight (25c in most areas). Packed ten boxes to a display carton.

KESTER SOLDER COMPANY

4201 Wrightwood Avenue

Chicago 39, Illinois

Factories also at Newark, New Jersey • Brantford, Canada



KESTER
SOLDER

Slip Covers a Profitable Sideline

Continued from Page 64

usually in the evening directly before and after newscasts as well as the same time during sports casts. These spots, Charlie Zaleski advises, are best, as they have the greatest number of car owners listening.

Personal contacts are made by the two partner owners of the Pomerantz garage. They make daily visits to new car dealers and offer their facilities for making fitted seat covers for any new cars that are being sold. In addition they obtain the names and addresses of new car purchasers and contact them by phone for slip covers. In other instances, they visit garages and used car lots, making arrangements to compensate them for any work sent to Pomerantz garage for slip covers.

When a motorist comes to the Pomerantz garage for seat covers, he is aided in making a selection of the color, pattern and type of material. After a customer has seen the different shades of seat covers being put into cars, he is taken into the stock room where he is shown the different patterns in the shade that he has selected.

They have been very successful in selling approximately 40 per cent of their customers door and wall covers by suggesting to them that this be done at the same time they are having covers put on.

(Continued on page 122)



"I sure told my boss off!"

line

64

be
well as
casts.
ad-
the
owners

by
the
make
and
king
cars
tion
ad-
and
slip
they
lots,
pen-
to
vers.
the
vers,
tion
of
has
seat
is
he
in

ful
ent
wall
that
me

ENGINEERING

B-W

PRODUCTION

ENGINEERING
B-W
PRODUCTION

BORG-WARNER

•
ENGINEERING
of mechanical improvements to make cars, trucks and buses serve better

PRODUCTION
of essential parts in volume to make assembly lines move faster

That's what this trade mark means to the Automotive Industry

THESE UNITS FORM BORG-WARNER. Executive Offices, Chicago: BORG & BECK • BORG-WARNER INTERNATIONAL • BORG WARNER SERVICE PARTS • CALUMET STEEL • DETROIT GEAR • DETROIT VAPOR STOVE • FRANKLIN STEEL • INGERSOLL STEEL • INGERSOLL UTILITY UNIT • LONG MANUFACTURING • LONG MANUFACTURING CO., LTD. • MARBON • MARVEL-SCHEBLER CARBURETOR • MECHANICS UNIVERSAL JOINT • MORSE CHAIN • MORSE CHAIN CO., LTD. • NORGE • NORGE-HEAT • NORGE MACHINE PRODUCTS • PESCO PRODUCTS • ROCKFORD CLUTCH • SPRING DIVISION • SUPERIOR SHEET STEEL DIVISION • WARNER AUTOMOTIVE PARTS • WARNER GEAR • WARNER GEAR CO., LTD.

Slip Covers Continued from page 120

The Pomerantz garage has patterns of every make and year model automobile. First, the car is fitted down with cloth and trimmed. From this the permanent cardboard patterns are traced. These are then used as permanent seat cover patterns and the make and model car is marked on the patterns. As covers are made in sections, each

one is identified on the pattern.

The patterns are laid out on the selected material and a cutter cuts out the sections. These are then sent over to the machine sewers. The sections are sewn together with a colored cord between them.

After the covers have been sewn, they are sent into the garage where they are fitted onto the cars.

Usually two installation men work together. One does the stationary work, such as the front seat and walls, while the other covers the removable parts. Covers on the back seat are hog ringed and tacked down on the front one. On the walls and doors they are wrapped just like the upholstering beneath.

The Pomerantz garage has two cutters, three sewers and 10 installation men. It takes approximately two hours to cut, sew and install back and front seat covers. About one hour more, if the doors and walls of the car are to be covered.

The Pomerantz garage does between 12 and 16 covering jobs a day, depending on whether the covers are just for seats or walls and doors.

Mr. Zaleski promises car owners that they can have their autos back the same day that they are brought in, and it is necessary for him to schedule jobs.

He has a peg board in his office that has the days of the week on it. As soon as an order is taken, he checks those orders already on the peg board and he can tell how many jobs he has for every day of the week. He then schedules a certain car for a definite day and the order is hung on that peg.

The cutters keep track of the orders on these pegs and cut the covers either a day previous or the

(Continued on page 124)

GET THE DROP ON SPRING SALES!

Sealzit Liquid Glass Sealer STOPS WINDOW LEAKS

Leaks in windshields . . . windows . . . and doors can mean profits pouring into your cash drawer with SEALZIT.

SEALZIT is the new marvel fluid sealer that seeks out and seals up all window leaks. It's colorless, flexible, dries quickly . . . fills in cracks and spaces where rubber sealer has drawn away from the glass. SEALZIT makes obsolete old-fashioned methods of gum fillers. With SEALZIT there's a sure seal that clings to both glass and frame . . . does not peel off, crack or break away.

SEALZIT is a sure cure for sealing ignition wiring and battery cables against dampness . . . sealing seams and joints of station wagons and convertible tops.

Make Spring rains bring you showers of profitable sales. Sell SEALZIT and you'll see your profits grow.

Available for immediate delivery from your automotive supplies jobber, or write for source near you.



FOSTER & KESTER COMPANY, INC.

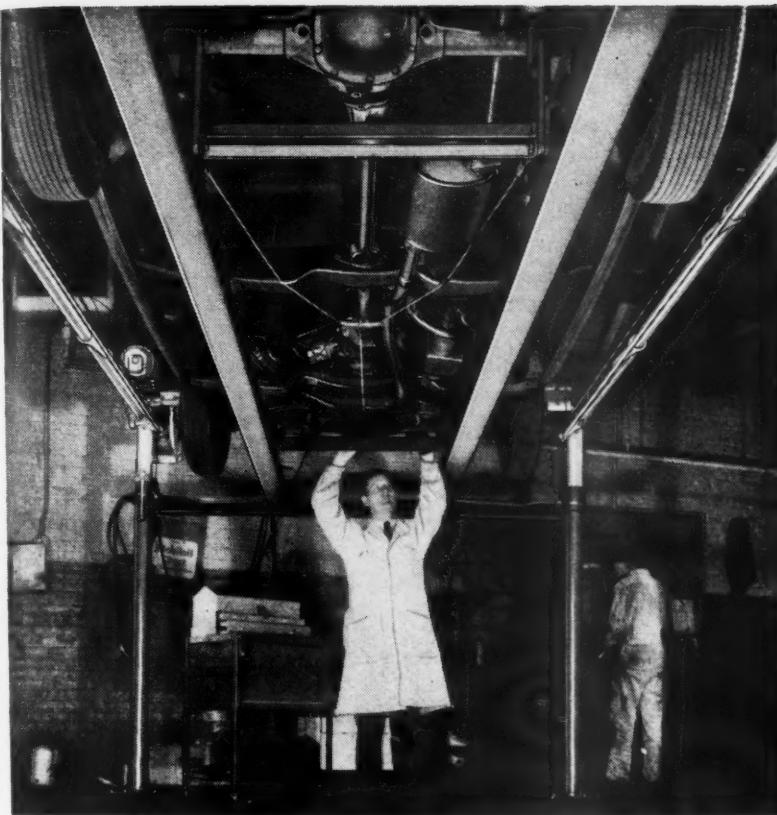
Reading North Broad Street Station

PHILADELPHIA 32, PENNA.



"Wish I had a pair of pliers. This would be a good time to fix this weather vane."

New, wider
beam spacing
and increased
working height
make the new
WALKER
ELECTRIC LIFT
ideal for shop
service work



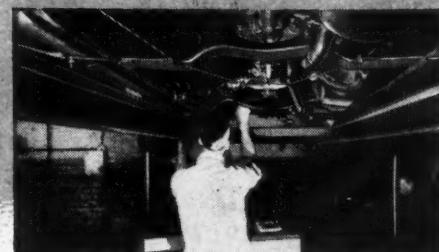
Increase volume and profits from 20% to 50% with the same "Mechanic" Power

- The new, improved Walker 4-Post Wide-Beam Electric Lift offers you a combination of advantages for under-body repair work and mechanical services, unequalled by any other lift.

With its new spacing between the long support beams increased to a full 30 inches, the Walker Lift provides even greater under-car accessibility. And the newly increased lifting height of 5'-6" provides the ideal working height for maximum utility, comfort and efficiency.

From the floor to the bottom of the car, men and equipment work without hindrance or obstruction—free from posts, free from any obstructions, whatever—in the famous Walker OPEN WORK ZONE.

Increase your service volume, increase your service profits—anywhere from 20 to 50%—with Walker Electric Lifts for mechanical service. They are the finest investment, the greatest profit insurance any service operation can buy.



FULL WIDTH ACCESSIBILITY

This actual photograph dramatically shows how completely the entire under-body area of a "Walker-Lifted" car is clear for servicing and repairs. There is no obstruction in the open work zone beneath the car. Freedom of movement is unhindered . . . repairs are completed quicker, easier . . . and with greatest possible comfort and convenience for the mechanic. The Walker Electric Lift is truly the ideal lift.

WALKER MANUFACTURING CO. OF WISCONSIN
RACINE, WISCONSIN

Also Makers of Walker Jacks, Exhaust Silencers and Oil Filters



WALKER Electric Lifts

... the lift with the Open Work Zone

Slip Covers Continued from page 122

same day that the car is to be covered.

The Pomerantz garage has made fitted covers a specialty and with all the jobs that they have done and have booked for future delivery, still feel that they have scratched the surface. "This business is limitless," says Charlie, "and we certainly intend to keep after it."

"Our specialty is making fitted seat covers," says manager Charlie Zaleski, of the Pomerantz garage in Chester, Pa., "and a very profitable business it is. At the present time there is a very large market for fitted slip covers that has been brought about by the automobile shortage.

"The shortage of automobiles

has made more motorists than ever before take an added interest in their cars," adds Mr. Zaleski, "and fitted covers for seats and walls are a foremost item."



"That'll teach you to keep your nose out of other peoples' business."

Ford Offers Training Program for Mechanics

A new continuous mechanics training program known as the Ford Mechanics Service Forum has been made available to all Ford dealers, I. L. Pierce, manager, service department, Ford division, Ford Motor Company, has announced.

The program is designed to instruct mechanics in Ford dealerships in the latest developments in servicing Ford products. It consists of 12 packages of visual training material which will be released one per month for 12 months. Four basic types of service personnel training aids will be utilized. They are: 1. Sound slide films. 2. Silent review films to serve as a basis for group discussion and interchange of ideas. 3. Take-home picture books for each mechanic's personal reference. 4. Actual practice sessions where service men may perfect job techniques by doing the work.

"The underlying purpose of this training program is to enable dealers to better serve the owners of all Ford products," Mr. Pierce said. "It will provide dealers with the foundation of a permanent training library which can be used repeatedly for refresher courses and for the training of new men."

Reconditioned Rods

MATCHED SETS FOR
FORD 85 hp and 60 hp V-8's

*A Package of Finer Performance
for every Reconditioned Engine*



Now reconditioned rods for Ford V-8 engines in *Matched Sets!* 23 rigid inspection checks mean that all rods conform to established specification standards.

Matched center-to-center distance assures even compression and smooth, even firing in all cylinders. Caps, threads, bore roundness, and all other important specifications are carefully checked to assure a new standard of uniformity and quality with finer performance for reconditioned engines.

FEDERAL-MOGUL SERVICE • DETROIT 13, MICHIGAN
(Division of Federal-Mogul Corporation)

Ask Your Federal Mogul Jobber!

Engine Bearings • Bushings • Connecting Rod Exchange • Reconditioned Connecting Rods • Rebabbitted Connecting Rods

FEDERAL
Mogul

Connecting Rod Bolts and Nuts • V-Seam Piston Pin Bushings • Laminated Shims • Bearing Metals Solders

1899 • FIFTY YEARS OF CONTINUOUS BEARING EXPERIENCE • 1949

ever
st in
"and
walls

nose
."

nics
nies
the
has
Ford
ser-
sion,
an-

o in
aler-
ss in
con-
ain-
ased
Our
nnel
They
lent
for
range
ture
onal
ses-
per-
the

this
real-
f all
aid.
the
ain-
re-
and

NOW!

SAVE TIME... BOOST PROFITS

WITH WEATHERHEAD'S NEW FARM AND FIELD PARTS MERCHANTISER FF94



Weatherhead "Double F" Merchantiser FF94 HOSE & FITTINGS FOR

Tractors
Trucks
Combines

Pumps
Compressors
Generators

SPECIALLY designed for farm and ranch parts replacements. Contains a balanced assortment of 229 fittings and 10 feet of hose for farm equipment. The popular types and sizes in a sturdy metal cabinet. Fits most anywhere. Keeps the stock in shape, saves valuable time. Weatherhead hose and fittings in Merchantiser FF94 are exact duplicates of the quality made parts used as original equipment by America's leading automotive, truck and tractor manufacturers.

Ask your jobber about Weatherhead Merchantiser FF94 today!



Look Ahead With

Weatherhead

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO

Plants: Cleveland, O. Angola, Ind. Columbia City, Ind. St. Thomas, Ontario, Can.

Two More Popular Weatherhead Merchandisers

The "Shelf Master" flexible fuel line assortment H275. Contains a wide variety of types and sizes of Weatherhead fuel lines for cars, trucks, and tractors.

The "Dee Cee" dash control assortment D24. Contains 24 dash controls in all popular types and colors. All controls complete with conduit and wire.

NOW! 2 GREAT
GET EXCLUSIVE ENDORSEMENTS OF

→ **No. 1**
COMET Skyshield*

ALL-STAINLESS STEEL



Both COMET Visors are sold under the Auto Sales Policy which distributes exclusively through leading Tire and Oil companies and such other major outlets as meet the merchandising standards set by Auto Products, Inc., 1015 Fisher Bldg., Detroit 2, Michigan.

NOW... AMERICA'S FASTEST-SELLING VISOR!

No visor in after-market history has vaulted to top position faster than COMET Skyshield! The reasons are plain—outstanding beauty, immediate installation, low price. Back these up with one of the soundest selling policies ever formulated and you see why dealers everywhere keep the orders coming in! Order your COMETS now! New for 1949! Underside now painted special green for maximum eye-comfort!



**TO SATISFY EVERY VISOR CUSTOMER
ORDER BOTH COMET VISORS!**

*TRADEMARK
PATENT NO. 2,182,809
OTHER PATS. PENDING

COMET VISORS

LEADING TIRE AND OIL MERCHANTISERS!

→ No. 2

COMET Skymaster*

CHROMED STAINLESS STEEL TIPS AND CENTER



DESIGNED TO COLOR-MATCH THE CAR!

For folks who want the visor and car to color-match, here's the beautiful new COMET Skymaster—worthy style-partner to COMET Skyshield. It is the same fine super-streamlined COMET design with tips and center section in chromed stainless steel! Panels are primed in neutral green ready for painting. Now you have COMETS for every taste—priced dollars lower than any other quality visor on the market! Order both COMET Skymasters and COMET Skyshields now from your regular supplier.

Now Available! Special window display stands—order with your COMET visors!



**MANUFACTURED BY CHARLES PECKAT MANUFACTURING COMPANY
DETROIT, MICHIGAN — MAYWOOD, ILLINOIS**

Cutting Overhead . . . Continued from Page 51

| | |
|-------------------------------|-------------|
| Sales..... | \$30,000 |
| Time and materials..... | 18,500 |
| Margin on sales..... | \$11,500 |
| Fixed expense..... | \$6,600 (2) |
| Variable expense..... | 3,300 (1) |
| Total overhead expense..... | 8,900 |
| Net profit on 1948 sales..... | \$ 1,600 |

Repairman Miller had the same volume in 1948. His overhead and

net profit in ratio to sales were also the same:

| | |
|-------------------------------|-------------|
| Sales..... | \$30,000 |
| Time and materials..... | 18,500 |
| Margin on sales..... | \$11,500 |
| Fixed expense..... | \$3,300 (1) |
| Variable expense..... | 6,600 (2) |
| Total overhead expense..... | 9,900 |
| Net profit on 1948 sales..... | \$ 1,600 |

To the operators who do not separate fixed and variable overhead expense, it would seem that both repairmen were on an equal footing from the standpoint of operating results, but notice that Repairman Smith has a ratio of 2 to 1, fixed to variable expense, whereas, Repairman Miller's ratio is reversed, he has a ratio of 1 to 2, fixed to variable. In other words, Smith's fixed expense is twice his variable expense, Miller's variable expense is twice that of his fixed expense.

In 1949, both repairmen feel the effects of the buyer's market, so they start slashing overhead expense where they can. Both succeed in cutting their variable expense 30 per cent. Their fixed expense can't be cut.

At the end of 1949, Smith's books show these figures:

| | |
|---------------------------------|---------------|
| Sales—1948..... | \$30,000 |
| Sales decrease in 1949—10%..... | 3,000 |
| Sales in 1949..... | \$27,000 |
| Time and materials..... | 18,500 |
| Margin on sales..... | \$10,500 |
| Fixed expense..... | \$6,600 |
| Variable expense..... | 2,310—30% cut |
| Total overhead expense..... | 8,910 |
| Net profit on sales..... | \$ 1,590 |

At the end of 1949, Miller also prepares a profit and loss statement and this is his result in condensed form:

| | |
|-----------------------------|---------------|
| Sales..... | \$30,000 |
| Sales decrease in 1949..... | 3,000 |
| Sales in 1949..... | \$27,000 |
| Time and materials..... | 18,500 |
| Margin on sales..... | \$10,500 |
| Fixed expense..... | \$3,300 |
| Variable expense..... | 4,620—30% cut |
| Total overhead expense..... | 7,920 |
| Net profit on sales..... | \$ 2,580 |

Why did Miller earn \$990 more net profit than Smith? The answer lies in the ratio of fixed to variable expense. Smith's fixed expense is twice that of Miller. It is too high in ratio to variable expense. Both repairmen cut variable expense 30 per cent, indicating that they both knew how to use the nippers equally well, but Miller's high ratio of variable expense enabled him to use expense control more effectively. Smith, on the other hand, was

(Continued on page 130)

INSTALL JOHNSON BEARINGS FOR Genuine Satisfaction

WHEN you sell or install genuine Johnson Bearings in a car or truck you can be sure of a satisfied customer. Every bearing or bushing in the complete automotive line is correct in design, alloy and tolerance. This means that they slip into place with the minimum of effort . . . and that they give long, efficient service after installation. In fact, Johnson Bearings are exactly like those furnished leading car and truck builders for the original equipment. Buy and sell them by name . . . Johnson Bronze.

Johnson Bronze
SLEEVE BEARING HEADQUARTERS
455 SOUTH MILL STREET • NEW CASTLE, PA.

The Johnson line is available to distributors everywhere. The new catalog lists and describes a complete bearing and bushing service for cars and trucks. Write for your free copy today.

o not
over-
a that
equal
of op-
at Re-
of 2 to
where-
is re-
to 2,
words,
see his
variable
fixed

el the
et, so
d ex-
suc-
e ex-
d ex-

books

\$30,000
3,000
\$27,000
16,500
\$10,500

8,910
\$ 1,590

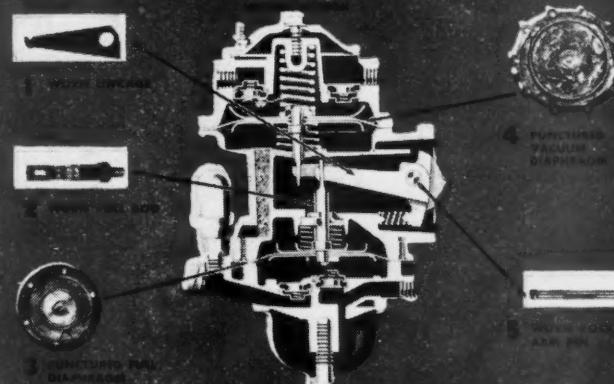
also
ment
nsed

\$30,000
3,000
\$27,000
16,500
10,500

7,920
2,580

more
wer
able
e is
high
Both
30
ooth
ally
of
use
ely.
was

5 POINTS WHERE WEAR AFFECTS FUEL PUMP PERFORMANCE



① **WORN LINKAGE**—causes slow priming and lack of fuel flow. These mean hard starting and loss of power.

② **WORN PULL ROD**—causes poor linkage movement which means reduced pressure because of lack of full diaphragm stroke.

③ **PUNCTURED FUEL DIAPHRAGM**—evidenced by low gas mileage per gallon and leakage through vent hole.

④ **PUNCTURED VACUUM DIAPHRAGM**—produces poor windshield wiper operation, excessive oil consumption, and poor idling condition.

⑤ **WORN ROCKER ARM PIN**—causes excessive rocker arm play which shortens diaphragm stroke. Result is pump failure through lack of fuel, particularly noticeable under extreme engine heat.

Wear on any one part will quickly produce accumulated losses in all parts, resulting in pump failure.

FUEL PUMP

Be sure you cash in on this powerful nation-wide campaign for preventive service.

You can keep your customers out of trouble . . . and double or treble your fuel pump sales . . . if you tie in with AC's big spring and summer campaign to 6,247,253 national magazine readers.

Just since 1944, *AC Fuel Pump replacement sales have gone up 263%!* That's because people are driving their cars longer and wearing out more fuel pumps. And they're buying new pumps, instead of repair jobs, because high labor costs often make it economy to replace instead of repair. They're also buying the whole AC Fuel Pump System, which includes the AC Gasoline Strainer and the AC Flexible Gasoline Line.

Have you been missing this great opportunity? If so, get in touch with your AC wholesaler. He'll get you the big colorful poster shown here . . . and a full set of AC sales helps . . . everything you need to cash in on the big summer season. And you'll be surprised how few AC Pumps you need to stock to cover your local market.

Remember, AC is the only nationally advertised fuel pump. Over 35,000,000 are in daily use.

BE A NATIONAL ADVERTISER



DISPLAY THIS SIGN

AC SPARK PLUG DIVISION • GENERAL MOTORS CORPORATION

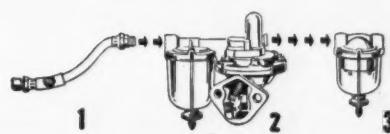
MOTOR AGE, May, 1949



LAUNCHES MAMMOTH FUEL PUMP DRIVE



AC FUEL PUMP SYSTEM



1. Leaky fuel lines are not only dangerous, but cause faulty operation of the fuel pump. Install a new AC Flexible Gasoline Line when you replace a fuel pump. 2. AC Fuel Pump, Heart of the Fuel System. 3. AC Gasoline Strainer keeps dirt and water out of carburetor, promotes easy starting and protects delicate carburetor parts. Every fuel system needs one.

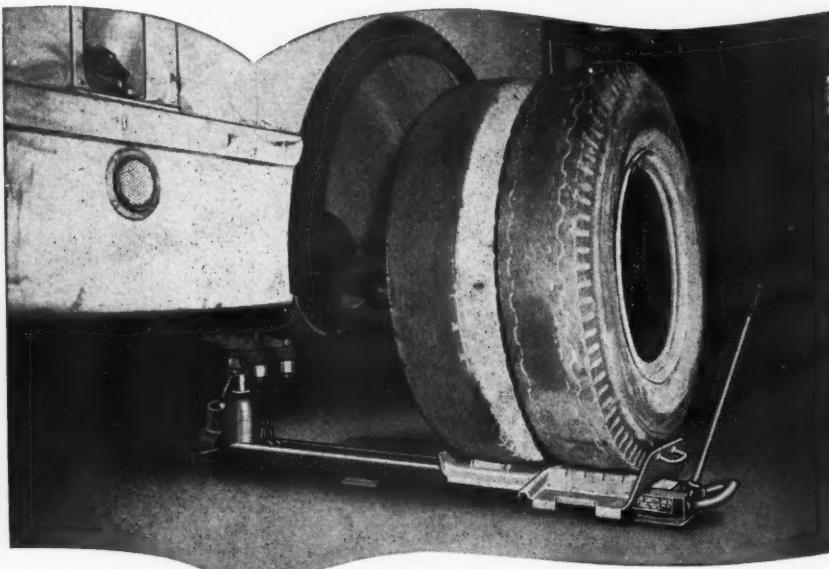
Cutting Overhead . . . Continued from Page 128

stymied by too high a ratio of fixed expense. His proportion of variable expense was too low. Even though he cut close, his efforts were inadequate because of the high ratio of fixed expense, which he could not cut. Miller, with a bigger field to work in to effect economies, \$6,600 in variable expense to \$3,300 for Smith, took a big wallop at this

portion of overhead in 1949 and saved \$1,980.

Reairmen and dealers with a high fixed expense ratio must promote sales with great aggressiveness in a buyer's market, otherwise, they may not make adequate profit. On the other hand, those with a low ratio of fixed expense have a grand opportunity to make sub-

stantial profits in a buyer's market if they go after business energetically and slash variable expense where they can or keep it in low gear while sales are in high.



• The Drum Safety Jack Removes Dual Wheels Faster

ONE MAN removes dual wheels faster and easier with a twin-dolly DRUM SAFETY JACK.

Eliminates dangerous greased plates. No need for expensive, cumbersome dollies. No more crawling under trucks and buses. No heavy wheels to lift.

The twin-dolly DRUM SAFETY JACK keeps dual wheels in alignment with the axle at all times.

Approved by leading fleet and bus operators. Available in 12-Ton single-dolly and twin-dolly models.

See your jobber or write to:



**DRUM
SAFETY
JACK**

THE CLEVELAND PNEUMATIC TOOL CO.

3777 East 77th Street • Cleveland 5, Ohio



Removes dual wheels as a unit.



"It's a good thing we switched to culverts."

Borg-Warner Offers 2 Automatic Transmissions

Borg-Warner Corp. states that two types of automatic transmissions soon will be offered to automobile manufacturers and that prospects are good for adoption toward the end of this year. The company did not reveal which manufacturers are interested, but it is known that Ford has been working closely with the company for a long time and it is considered likely that Studebaker, Kaiser-Frazer and possibly Hudson and Nash may be prospects.

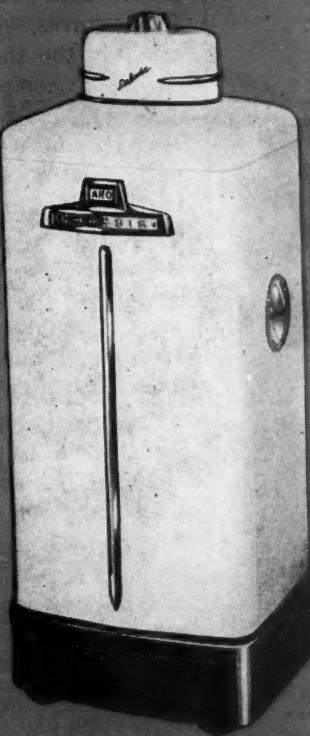
Plymouth 111 in. Wheelbase Models in Production

Plymouth Div. of Chrysler Corporation is in production of its 111-in. wheelbase, 3-passenger coupe, and the 2-door sedan and the all-steel station wagon will go into production in a few weeks. Only price announced is for the 3-passenger coupe which bears a factory retail price of \$1,295. Dodge currently is in production of its Wayfarer line on a 115-in. wheelbase. It includes a roadster, 3-passenger coupe and 2-door sedan. Price of the 3-passenger coupe is \$1,525. Prices of the other two models have not yet been announced.

Coming
Your way...

Bigger Lube
Profits!

SMART NEW ARO DELUXE LUBRICATORS



ARO Features SAVE LABOR . . . IMPROVE SERVICE



Pumping Lever
at Hand Level
... for easy
operation of
gearlubricator.



Convenient Lo-
cation of Ser-
vice Assembly
on back of
cabinet . . . in-
stantly ready
for use.



Identified Ser-
vice plates
available with
brand name of
oil or car in
color.

Your lube department will sparkle with "come in appeal" . . . when you equip with ARO DeLuxe Lubricators! ARO's beauty styling impresses customers . . . brings them in again and again for lubrication and other profitable services. ARO performance does the work right . . . top speed . . . top efficiency. Whatever your requirements—for smallest to largest lube service department—ARO has everything you need from specialized guns and overhead reels to cabinet units and complete accessory equipment. Precision-built . . . dependable. See your Aro Jobber. Write for literature. The Aro Equipment Corporation, Bryan, Ohio.

ARO

LUBRICATING EQUIPMENT

ALSO...AIR TOOLS...HYDRAULIC EQUIPMENT
AIRCRAFT PRODUCTS . . . GREASE FITTINGS

GET SET FOR SPRINGTIME DRAIN-FLUSH PROFITS!

*Two-Way Flushing Action
with ARO VISI-FLUSHER—ideal for servicing gears
... helps you sell more gear
lube! Uses single hose.
Pressure-Vacuum Control
Valve creates a vacuum for
drawing fluids into, or
pressure for expelling fluids
from the spherical container.
Nozzle reaches re-
mote points in gear case.*



Beating Bombers . . . Continued from Page 59

colored the same as the note, and he's producing music."

Hundreds of Aluphones were sold last year in Memphis, Nashville, and Washington department stores. This year production will be on a greatly increased basis.

Mr. Beck has other plans for his toys. He intends to make them with animals, birds, and plant life

(trees, vegetables, flowers, etc.) to serve as guides in place of the colored dots. Thus a moppet wishing to play "Old Folks at Home" or "London Bridge" would look at the sheet scored with little drawings of a bear, cow, dog, cat, horse, lamb, chicken, and giraffe. The tubes on the Alphone would have similar drawings. By hitting the

"cow" tube he would produce the "A" note the "dog" tube the "B" note, and so on.

"It should be very helpful in teaching music in primary and first grade classes," Mr. Beck believes.

But the Aluphone is only one of the products made from the dismantled bombers. There are also beautiful little pianos and banjos. The cabinets are made from the South American mahogany taken from the plane fuselages. It's necessary to strip off the cloth covering from the veneer but this is a relatively simple job. The pianos are light, yet very sturdy, and the stools surprisingly strong. A full-grown man can sit on them without causing damage.

Mr. Beck's plans call for constructing children's baby grand pianos with sharps and flats up to four octaves. In the back of his mind is the thought of manufacturing a complete line of high grade musical instruments utilizing electronic devices. In fact, he has made a set of beautiful chimes for the First Christian Church of Union City which may be operated independently of the organ. Also, he has a similar set of chimes, made from brass tubes, connected with a miniature console. This is housed in his own living-room.

Playing the marimba and xylophone could be called Mr. Beck's hobby. His plate glass xylophone, which required about five months to complete, is played with two hammers to which little bells taken from electric door bells and dinner bells have been attached. When he uses these a beautiful "Swiss Bell" effect is achieved. "Never heard of another set like this one anywhere else," Mr. Beck stated.

In addition to his toy plant, Ford dealership, and vice presidency of a bank, Mr. Beck is a part owner of the Union City Ford tractor agency and president of the First Federal Savings and Loan Association. During World War II he served in the Tennessee legislature, being elected to office without "spending a nickel or campaigning one minute." He formerly was head of a successful garment factory in Union City. Now, at 65, he is scaling the heights of a third career.

MINUTEMAT

JIFFY FLOOR MAT INSTALLATION



WRITE FOR DETAILS.

DISPLAY CARTON
HOLDS 6 MINUTEMAT BOXES
ADVERTISED IN THE

POST

Doan MANUFACTURING CORP.
CLEVELAND 12, OHIO

★ INSTALLED IN A JIFFY. Fits any car front and rear. No fitting necessary. Just trim ends to desired size. Stays in position.

★ PROTECTS EXPENSIVE CARPETING against dirt, grease and wear. To clean, simply remove Minutemat, shake out and replace in position.

★ SELLS ON SIGHT. Every car owner a prospect. Instant appeal results in fast turnover, quick profits.

★ AVAILABLE IN BLACK OR TAUPE.
TWO USED PER CAR.

DISPLAY MERCHANTISER

For Floor Mats
and Pedal Pads

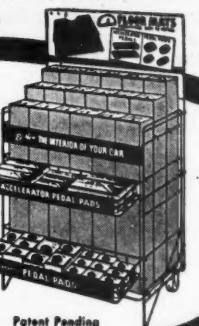
Holds 18 floor mats.

36 pairs pedal pads.

19 accelerator

pedals. Rolls

on wheels.



Patent Pending

THE NEW DE SOTO

has been given a tremendous welcome by the public. "The car designed with you in mind" was designed with DeSoto dealers in mind, too.



Lets you drive without shifting!

● The widespread enthusiasm that greeted the new DeSoto when it first appeared has continued without let-up. Everywhere, motorists are finding in DeSoto exactly the things they *want* in their next new car . . .

Brilliant styling that combines both imagination and common sense. More head-and-hat room inside; more leg-room; more trunk room. Larger windows and windshield

. . . with broad, chair-high seats for really *enjoying* this greater visibility. The smoothest DeSoto ride ever. And Tip-Toe Hydraulic Shift with Fluid Drive that lets you drive without shifting.

It all adds up to an enviable position for the dealers who sell this great new car. And these same dealers also sell the beautiful new Plymouth, the car that makes the difference in the low price field.

PEE DEE says . . .
"Look to this trademark
for high quality products"

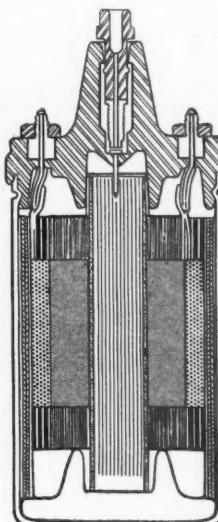


ignition replacement parts
 fuel pumps • carburetor kits
 air cooled coils • voltage regulators

When you use P&D products you can be sure you're giving your customers top performance. Genuine P&D parts are manufactured completely in the modern P&D plant — from raw materials to finished products. Long experience in automotive engineering combined with skilled workmanship assures you of the best products you can get.

Take the P&D coil, for example. Notice how the combination high tension terminal for both screw and plug type connections (a solid brass insert) is molded into the cap to assure a moisture-proof connection. Then notice the patented one-piece (seamless) air cooled container — ribbed to give ample surface to dissipate heat. Our exclusive Perma-Sealing method of locking the plastic top to the container makes for an absolutely moisture-proof seal.

Write today for your free copy of Catalog No. 49 giving full information about P&D condensers, contacts, switches, relays, etc. — the one complete line of quality starting, lighting and ignition products for all automobiles, trucks and buses.



*Turn Out Better
 Tune-up Jobs
 With PeeDee*



MANUFACTURING COMPANY, INC.
 LONG ISLAND CITY 5, N. Y.

1949 Philadelphia Auto Show Test of Public Interest

The Philadelphia Automobile Trade Association is sponsoring the first major post-war automobile show to be held in America. It will be held in Philadelphia's Commercial Museum on June 11-18. The industry will be watching this show with interest to see what public reaction to the return of the big automobile shows will be. All the major American manufacturers are participating.

The National Antique Auto Show held last year will be held in conjunction with the new car show. About 60 carefully restored antiques in perfect operating condition will be on view. Among them is the Thomas Round-the-World Flyer and several other famous cars.

What appears likely to be the first Automobile Show in America was held some years ago in Philadelphia—1805 to be exact. No, that's no typographical error. In Eighteen Hundred and Five, according to an advertisement in the Philadelphia *Gazette* for July 13, all persons were invited to Center Square to view the Orukter Amphibolos for the sizable sum of twenty-five cents, if they could spare it. The money was to be used to pay the workmen, who had repaired at their own expense the wheels and axles which had broken down the year before. Apparently getting a new car on the market had its drawbacks even in those days. The Amphibolos, of course, ran on steam.

On February 4, 1901, however, Philadelphia presented a full size modern Automobile Show at the 2nd Regiment Armory, complete with eighteen exhibitors and twenty-six different makes. The cars on exhibit were: Locomobile, Mobile, Columbia Electric, Columbia Gasoline, Foster Steam, Orient Carriage, Orient Motor Cycle, De Dion Bouton, Marlboro, Century, Winton, Reading Steam-Carriage, Victor, Fanning Electric, The Wall, The Schwartz, The Skene, National Electric, Boston, The Gasmobile, Thornycroft, Electric Ambulance, Union Motor Truck, Woods Electric, Grout, Standard.

"Who Could Ask For Anything More"

The New **CORONET**

GYRO-MATIC TRANSMISSION . . . FREES YOU FROM SHIFTING

The New **MEADOWBROOK**

... higher on the inside, lower on the outside . . . longer on the inside, shorter on the outside
... wider on the inside, narrower on the outside

And Now The **WAYFARER**

... just a few dollars more than the lowest-priced cars . . . to make the Dodge franchise still more profitable. There is greater stability than ever in the 3-way sales and service potential of Dodge cars and trucks together with Plymouth cars, all combined in one agreement.



DODGE • PLYMOUTH • DODGE "Job-Rated" TRUCKS

DODGE DIVISION OF CHRYSLER CORPORATION, 7900 JOS. CAMPAU, DETROIT 11, MICHIGAN

Pop O'Neill Continued from Page 43

explained Tommy. "But it isn't stuck now."

"I'll road test it," said Larry. "That's the *only* way to find out what's wrong with a car." He raised his chin slightly. "Remember that, boy," he added.

Tommy reddened at the patronizing air. Only the day before, by using the new analyzer which Larry

sneered at, he had caught a faulty distributor missed completely by Larry on his Road Test Special.

"Can you fix it, Larry?" asked Miss Brewster icily. After 25 years, she still thought of Larry Tate as the brash little fifth grader in the seat nearest her desk.

"Of course," said Larry grandly. "There ain't nothing I can't fix,

Miss Brewster. I'll give this crate a road-test and spot the trouble right off the reel."

"Just spot the real trouble right off," said Miss Brewster. "And keep it grammatical even if you aren't in school." As Larry started the car she added pointedly, "Just a minute, boy. I'm coming along when *you* drive my 'crate.' Besides I want to see you using your divining rod on this road test."

They pulled out into the street and disappeared. Some time later Larry came driving back alone. Without slowing down he yanked the wheels full right bounced his left front tire up over the curb as he missed the entrance a bit and skidded to a stop. He was angry clean through. He slammed the door as he got out and stalked into the back room.

"What's the matter?" asked Tommy. "And where's Miss Brewster?"

"I left her up town," said Larry shortly and went for his toolbox. "She'll be back in half an hour."

"Half an hour!" exclaimed Tommy. "That doesn't give you much time to fix anything."

"Serve her right if I don't fix it at all," growled Larry. "Treats me as though I was still a little kid in the fifth grade."

"Did you have her in the fifth grade?"

"Yeah, the first two times," mumbled Larry.

"What's the matter with her
(Continued on page 138)



Over five million cans of Warco Brake Fluid have been sold through "Quality". And other Warco Products enjoy similar popularity for the same reason.

Get acquainted with the sales-building Warco Line. Remember—"Warco Quality and Profit" travel arm-in-arm.



WARCO Grade "A" Brake Fluid

Supreme quality. Non-oxidizing. Will not gum or crystallize. Low freezing point. Because of its high viscosity, ideal for hot weather and torrid climates. Chemically stable. Lubricates because of better grade oil content. Guaranteed to mix with all standard or approved brake fluids. Packed in standard cartons, in lithographed tins.

OUTSTANDING WARCO PROFIT BUILDERS

WARCO Grade "A" Heavy Duty Brake Fluid

WARCO Shock Absorber Fluid No. 200

WARCO Knee Action and Shock Oil No. 100

WARCO Mo-Tun-Up

WARCO Liquid Radiator Flush

WARCO Rub-A-Lube

WARCO Penetrant

WARCO General Purpose Oil

WARCO Windshield Cleaner

WARCO Replacement Universal Joint Boots

WARWICK LABORATORIES CO.

334-42 Cleveland Street, Brooklyn, N. Y.

WARCO

Warehouses: Herman J. Downey Co., Birmingham, Alabama. Automotive Parts Distributors, Inc., Athens, Ga. Automotive Service Industries, Inc., Dallas, Texas. West Coast Rep.: M. L. "Bud" Cohn, Los Angeles, Calif.



YOU CAN STAKE YOUR REPUTATION ON PERFECTION!



"PRE-FITTED" PARTS FOR PERFECT REPLACEMENT

Fast, easy installation is assured with Perfection Certified Replacement Parts. Every step of manufacture is a matter of precision workmanship to achieve "pre-fitted" uniformity for perfect replacement.

Over 28 years of manufacturing achievement, coupled with rigid standards of control and inspection, have achieved a reputation for dependability in PERFECTION products. Use of the finest materials, heat treating under scientific control, and precision accuracy throughout production assure continued high PERFECTION quality.

There is a PERFECTION jobber near you. He carries a representative stock of these quality parts and is prepared to render prompt, efficient, friendly service. If you do not know his name, write us.

PERFECTION GEAR COMPANY • HARVEY, ILL.



PERFECTION PRODUCTS INCLUDE: Silent Timing Gears, Metal Timing Gears, Silent Timing Chains, Transmission Gears and Parts, Differential Ring Gears and Pinions, Differential Cases and Parts, Fly Wheel Gears, Cylinder Heads, Clutch Plates, Pressure Plates, Clutch Cover Assembly Parts, Clutch Forks and Parts, Clutch Rebuilders.

Pop O'Neill • Continued from Page 136

car," asked Tommy, tactfully changing the subject. He could imagine Miss Brewster had been telling Larry a thing or two about how to handle her car.

"I don't know yet," admitted Larry. "Sometimes that pedal sticks and sometimes it don't. Just like the old battle-ax said. The clutch ain't so hot either."

"Well, you're not going to do any clutch job in half an hour," said Tommy as he went back into the pit where he was working on a Plymouth clutch. A few minutes later he heard Larry back at his tool-box again. "Aren't you going to run it inside?" he called out.

"Run it inside!" snorted Larry. "Now the engine won't start an'

the starter pedal won't release either. I'll bet that old witch put a hex on it." He stamped out again but immediately Tommy heard him running across the cement floor, then he jumped down the steps into the pit beside Tommy.

"Sh!" he said. "She's out there!"

"Who?" Tommy asked but Miss Brewster's ringing schoolma'am's call gave him his answer.

"Larry Tate," she called. Then she started to walk toward them. "Larry Tate, come out of there this minute. I saw you duck inside."

"I haven't got her car fixed," explained Larry. "You go out an' tell her," he begged. "She'll take the hide off me."

"She hasn't caned you for 25 years," said Tommy. "Grow up."

"OK, OK," agreed Larry with a sickly grin. "But go tell her I'm tied up for awhile."

Tommy wiped his hands on a greasy rag and climbed out of the pit. As he came up to the Oldsmobile he noticed that Pop O'Neill was there before him. Miss Brewster didn't seem so angry as her tone had belied, but Tommy took no chances and waited respectfully for her to stop talking with Pop. But Pop spoke to him first.

"Where's Larry," he said grimly.

"He'll be right out," said Tommy.

"Probably ducked into the men's wash room by now," added Miss Brewster with a twinkle in her apparently cold eye. "Unless he's changed some since I used to be responsible for him."

Larry, however, was not in the washroom this time. He came

(Continued on page 140)

**GO PLACES
IN MOTOR TUNE-UP**

Here is a golden opportunity to favor your Tune-Up jobs with heavier duty, super performance parts that are precision-built for exact fits—and easier installation. Ask your jobber to serve you with SUPEROGO Automotive Ignition. It will prove to be your best buy in "Tune-Up Parts." Wells Mfg. Corporation, Fond du Lac, Wisconsin.

QUALITY TELLS . . . DEMAND WELLS

WELLS
Automotive Ignition



"And when a salesman of ours falls behind in his territory—!"

ease
put
gain
him
door,
into

re!"
Miss
am's

Then
em.
this

ex-
tell
the

25
."
h a
I'm

n a
the
mo-
was
ter
one
no
for
But

ly.
my.
n's
iss
ap-
e's
be

the
me
(0)

✓ COLORFUL STEEL CABINET
Enamored brilliant red and blue.
Streamlined and sturdy

✓ FAST-SELLING ASSORTMENT
48 packages of the six fastest-
selling Dor-Tite sizes included.

✓ SHOWS SAMPLES
An actual section of each size is
displayed on front panel.

✓ DISPLAYS DOR-TITE BOX
One box of Dor-Tite is held se-
curely on front of cabinet.

✓ SUGGESTS USES
Six different applications for
Dor-Tite are illustrated.

✓ HANDY PRICE CHART
Gives sizes and prices for easy
reference and stockkeeping.

DURKEE-ATWOOD

DOR-TITE Merchandiser

THE ORIGINAL SPONGE RUBBER STRIP WITH
PATENTED NO-STRETCH FABRIC BACK

Licensed under U. S. letters patent No's.—1,868,080 and 1,960,137



COMBINES ALL THESE SELLING FEATURES

Make Dor-Tite a major profit item for you, with this fast-moving assortment in a colorful, steel, counter merchandiser. Its instant sales appeal stops traffic, its actual Dor-Tite samples interest customers, and its suggested uses sell them! Dor-Tite, the original, self-adhering sponge rubber strip has a thousand applications on cars, trucks, buses; in homes, shops and industry. It weatherstrips! It seals out dust! It stops squeaks, rattles and vibration! Everyone is a potential customer for Dor-Tite and this merchandiser does the selling for you.

Thousands of dealers have already multiplied their Dor-Tite sales with this merchandiser and assortment. Ask your wholesaler about it or write direct for more information. Durkee-Atwood Company, Minneapolis 13, Minnesota.

DURKEE ATWOOD

COMPANY

Manufacturers of 41 Automotive
Rubber and Chemical products

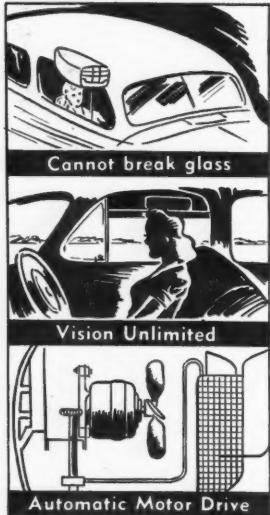


4 Good Reasons Why . . .

you can make Big Profits MOTORIZED with a CAR COOLER that REALLY COOLS!



Electrically Driven car cooler!

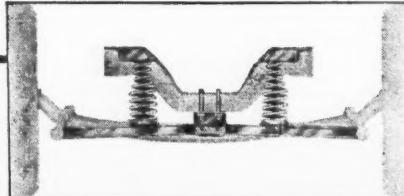


1. WINTER BREEZE makes July feel like Spring . . . on desert, highway or scorching streets . . . whether the car is moving, idling in traffic, or parked!
2. WINTER BREEZE mounts on the door, not the glass! Does not obstruct driver's or passengers' view. Adjustable to fit any size car window. Installed, or removed, in less than 5 minutes. Window can be rolled up and car locked.
3. WINTER BREEZE is automatic—no ropes or chains to pull. 3,200 RPM low-amperage DC motor drives the pump, fan and filter that washes, cleans and circulates cool air to every part of car!
4. WINTER BREEZE is guaranteed for 1 year . . . your assurance of satisfied customers who will recommend the Car Cooler—and you—to other automobile owners!

WINTER BREEZE motor-driven Car Coolers are smartly styled. In Harmonizing colors, priced to please! Demand will be great . . . so, if you want to cash in on this chance to *make real profits*, mail the coupon below at once for full details!

ATTENTION!

Also check if you want to make a \$20 profit on patented Front Coil Spring Assembly that makes '35 to '48 Fords, Mercurys ride like 1949 models equipped with "Hydra-Coil" Springs!



WRITE
NOW

AUTOMOTIVE DIVISION FEDERAL IDENTIFICATION COMPANY

Dept. M-5 1713-35 WEST GRAND AVENUE • OKLAHOMA CITY 6, OKLAHOMA

Your Name _____

Firm _____

Address _____

City, Zone, State _____

Type of Business _____

Wholesaler
Retailer

IMPORTANT: If Retailer, give
your Wholesaler's name _____

Pop O'Neill

Continued from Page 138

slowly around the corner lugging his full tool kit, then stopped short in feigned surprise. "Back already, Miss Brewster," he asked. Not that he needed the information.

"Yes," she answered. "Have you fixed my car?"

"Now it looks as though it might take a bit longer than I thought out on the road," he began cautiously.

"What are you fixing?" she asked pointedly.

"Your car," hedged Larry.

"What's the trouble with it?" asked Pop.

"Well," began Larry. "The accelerator pedal sticks sometimes. And now the starter pedal won't release."

"It must be in the linkage," volunteered Tommy.

"Of course not," Larry snapped. "Not both at the same time. More likely the whole body's out of line."

"And you with a $\frac{5}{8}$ in. open socket wrench in your hand," said Miss Brewster to everyone's surprise. "But I did have a bad accident about a month ago. I ran into a culvert. The body was repaired by Universal Body Shop."

"They do first class work," said Pop. "It prob'lly isn't in the body; but that's a possibility." He thought a moment. "Have you checked the engine mountings?"

"Engine mounts!" Larry shouted out in surprise. "How could they . . ."

"Engine mountings," repeated Pop firmly. "Take a look." As Larry dug out his flashlight and



"He's stinkin' rich — controls the fertilizer industry!"

lifted the hood, Pop continued.

"A broken right rear mounting could cause this trouble. The accelerator is linked at both ends so it would bind on the floor boards, particularly on turning a corner to the left because centrifugal force would tend to move the engine farther toward the right. Then if the engine tilted farther out of line—probably tearing the front mounting apart at the same time—when the starter pedal was pushed down, it could clip past the arm."

"That's what it did, Pop," Larry declared, relieved now that matters were safely out of his hands. "An' this right rear is busted in two."

"But," Pop continued puzzled. "There must have been considerable 'clutch chatter,' wasn't there?"

"Yes," said Larry truthfully. "But I was takin' up one thing at a time."

Pop just shook his head, and Larry's face sagged as he waited for the call-down which he should have known Pop never gave in public.

"Hasn't changed a bit," sniffed Miss Brewster. "The only way he ever got a hundred in the fifth grade was by taking things up one at a time."

Larry's frown changed to a grin. "Yeah, I was pretty good at gettin' hundreds, wasn't I, Penelope?"

"Yes," she concluded after pointedly waiting out the interruption. "30 for Spelling, 30 for History and 40 for Arithmetic. Total 100. Except on your poor days."

On behalf of the Philadelphia Automotive Servicemen's Association, R. H. Erny, President, accepts an invitation extended by Miss MARA for the Show Committee of the Middle Atlantic Regional Automotive Show.

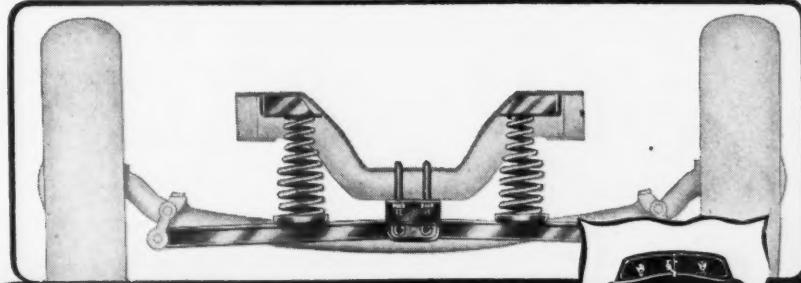


MOTOR AGE, May, 1949

MAKE A \$20 PROFIT ON...

Hydra-Coil Idea

Ford Front Coil Spring Assembly That Makes '35 to '48 Fords, Mercurys Ride Like a 1949!



EVERY FORD OWNER WILL WANT IT!

BIG PROFIT BOOM in Hundreds of
Conversions in Your Locality!



Ford Motor Company's national ads feature "Hydra-Coil" Front Springs that soak up the bumps on 1949 Fords and Mercurys! Owners of older model Fords will be eager to make their old car ride like a new one . . . with the patented

Front Coil Spring Assembly . . . because there is as much difference in the new and old spring assembly, as in a Model "A" and V-8 motor! Ford dealers alert to the big PROFITS to be made with Front Coil Spring installations will really cash in!

EASY TO INSTALL

Instructions are clear, simple, easy to follow. Installation of a Front Coil Spring Assembly on a 1935 to 1948 Ford or Mercury can be made in 1½ hours—or less. All parts GUARANTEED for 1 year!

STANDARD PARTS

The patented Front Coil Spring Assembly was perfected by an Automotive Expert who has for many years specialized on Ford cars. Keeping ease and speed of installation in mind, the assembly unit was developed to conform to specifications of standard Ford parts!

It may take 3 to 5 years for thousands of present and future used Ford owners to get into the 1949 class. Surveys show that demand for a Front Coil Spring Assembly, that will give an older model Ford the riding qualities of a '49, is far greater than it is for a sunvisor, for instance. So hook on to the "gravy train" created by national ads that feature FRONT COIL SPRINGS on 1949 Fords and Mercurys. For full details, mail the coupon below—at once!

SPECIAL NOTICE!



Write
Now!

Also check if you want to make big profits with WINTER BREEZE—a motorized Auto Cooler that really cools! Washes, cleans and circulates cool air to every part of car. Smartly styled. In harmonizing colors. Priced to please!

AUTOMOTIVE DIVISION FEDERAL IDENTIFICATION COMPANY

Dept. MC5. 1713-35 WEST GRAND AVENUE • OKLAHOMA CITY 6, OKLAHOMA

RUSH discounts de-tails on Front Coil Spring Assembly for '35-'48 Fords, Mercurys.

TELL me about Winter Breeze, motor-driven car cooler that really cools!

IMPORTANT: If Retailer, give your Wholesaler's name

Your Name _____

Firm _____

Address _____

City, Zone, State _____

Type of Business _____

Wholesaler
Retailer

INLAND a dealer



NEW INLAND FRANCHISE IS A BIGGER MONEY-MAKER FOR YOU THAN EVER BEFORE

A big new profit opportunity has been added to the Inland Tire Dealer Franchise! A Volume Bonus that adds up to real profit every year for the man who sells the Inland Tire Line! It's just one MORE good reason for stocking and selling these new Inlands—first choice of thousands of successful independent dealers.

YOU ARE THE BOSS WITH THE INLAND LINE!

In a nutshell, here's what the Inland Franchise means to you: You are in the tire business for yourself. You sell a top quality tire—backed up with one of the strongest, fairest warranties in America. It's a full 15-month *written* Warranty against all road hazards—with no mileage limit. A Warranty that pulls in tire buyers—

Dannounces ervolume bonus!

INLAND HEAVY SERVICE



INLAND HIWAY SERVICE



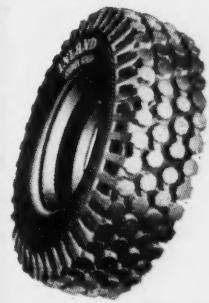
INLAND COMMERCIAL



INLAND TRUCK AND BUS



INLAND MOBBY GRIP

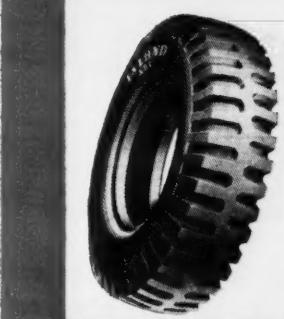


that sells—and SWELLS your volume and your profits! You make on-the-spot adjustments that win confidence and keep customers. You are the Boss! Your decision is final! You get all these advantages—plus the extra money you earn with Inland's new Volume Bonus that pays off to large and small dealers alike!

MADE WITH COLD RUBBER!

When you sell Inlands, you sell the most competitive line of tires in America. All Inland passenger car tires now contain the sensational new COLD RUBBER—scientific marvel of postwar rubber chemistry that stretches tire mileage almost beyond belief. All Inland Tires are made with "Cool Twist"** cord—and all are warranted in writing. It's a combination that adds up to MORE satisfied customers for you—MORE profit per customer!

*Trade-Mark Registered U.S. Patent Office



INLAND MUD/SNOW

GET IN ON INLAND'S NEW EXTRA PROFIT BONUS... NOW!

Inland dealers are now making more money with Inland's new volume bonus. You can too! Call your automotive distributor for full details. Or send coupon for complete information.



INLAND RUBBER CORPORATION

146 W. 27th St., Dept. M45, Chicago 16, Illinois

Please send me complete details about the new Inland Franchise opportunity.

Name.....

Address.....

City.....Zone.....State.....

County.....

INLAND RUBBER CORPORATION

A Subsidiary of Minnesota Mining and Manufacturing Company

Testing Blocks Continued from page 65

nctions to the water inlet openings. The time for this test is approximately 30 minutes per block. Of course, it is possible to reduce this time with elaborate equipment, such as air cylinders to press on the dummy heads. Such equipment is not available commercially and the rebuilder who chooses to water-test must build his own by trial and

error. With the best possible equipment of this type it will take approximately five minutes to test a block. There will also be some maintenance cost on such a test stand as well as the power consumption for air pressure and so forth. The engine rebuilder who uses a pressure test has either high labor cost in his inspection, or he has to go in for

heavy capital investment on a fancy test stand, which will also require heavy maintenance.

But this is not the whole story on the water test. Aside from its high cost, it is still possible to miss cracks which have been blocked up by sediment and accumulation of carbonized grease, and it will not find the fine cracks which will not develop into leakers until some of the metal is removed in the machining operations, or until the engine has gone through a few more heating and cooling cycles. Then there are also definite possibilities of missing some of the "top surface" cracks (between valve seat and cylinder) and cracks in the center main bearing, and so forth.

Precision Engine, Inc., were not satisfied with their system of visual inspection because too many times they incurred "Extra Cost" due to missed cracks. Also, they felt that their labor cost of inspection (10 minutes per block) was excessive. After investigating and discarding the idea of building a pressure test stand, they investigated the Magnaflux inspection method.

This is a method of non-destructive testing used for many years and with great success in railroad, aircraft, and production industries. More recently it has come into its own in the automotive field. Most manufacturers of cars and trucks use it for the inspection of critical

(Continued on page 146)



Trainor All-Steel Helper Springs are designed to fit any car or truck. Trainor Springs reduce road shock and ensure that extra payload capacity . . . are engineered for simple installation. All attaching parts are made of spring steel without breakable castings. Trainor Springs are individually Load Tested.

Passenger car and truck catalogues sent upon request. Write for complete price list.

BRANCHES

CINCINNATI TRAINOR SPRING CO
116 West Court Street
Cincinnati, Ohio

COLUMBUS TRAINOR SPRING CO
339 Cleveland Avenue
Columbus, Ohio

INDIANAPOLIS SPRING CORP.
830 West Washington Street
Indianapolis, Indiana

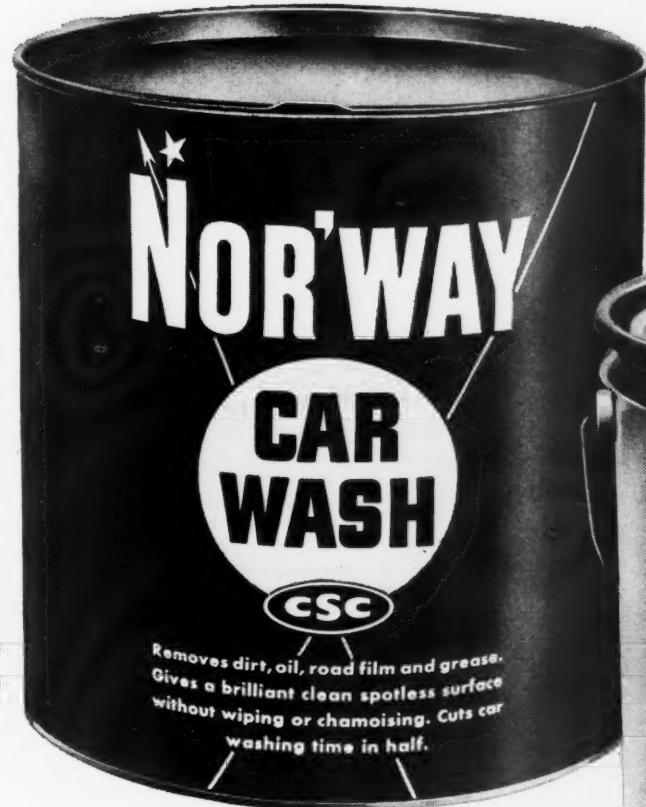
**TRAINOR NATIONAL
SPRING COMPANY
NEWCASTLE, INDIANA**



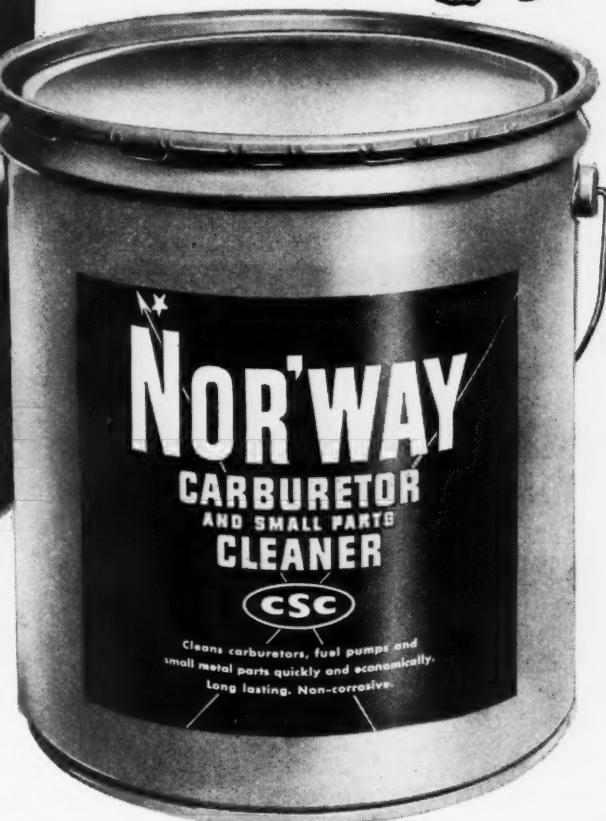
"Look! No hands!"

THEY'RE NEW! THEY'RE NOR'WAY!

Look at the NOR'WAY Line for '49!
There's Cooling System Cleaner,
Quick Flush, Stop Leak, and
Anti-Rust, and NOR'WAY
DRY-EX,® and now, two
new CSC products—
NOR'WAY Car Wash and
NOR'WAY Carburetor and
Small Parts Cleaner.



NOR'WAY CAR WASH is not a soap. It contains no harsh acids or abrasives, no kerosene. Made of synthetic detergents, it works wonders anywhere—washes away grease, oil, road film, bugs, and dirt from wheels, tires, body, windows, and chrome. It gives a brilliant, clean, spotless surface. It's self-drying, non-streaking, simple to use—no wiping or chamoising. Cuts car washing time in half. Available in 4-pound and 18-pound cans, with handy measuring cup.



NOR'WAY CARBURETOR & SMALL PARTS CLEANER is a topnotch solvent cleaner that's quick and efficient. It whips into carbon, gum, grease, dirt, and deposits from tetra-ethyl lead. Ideal for carburetors, fuel pumps, cylinder blocks, and other metal parts. Restores brilliance of white metal parts. Contains no acids, is non-corrosive. Will not mar, pit, or attack metals in any way. Safe, easy to use, long lasting. It's available in 5-gallon cans or in cans containing 4 gallons of Cleaner and a special dipping basket.



STOCK UP on these two, new profit makers now. Put them to work. Save time and labor. Handle jobs faster, better and more profitably. Remember, they're CSC products. You know they're good—and good business too.

COMMERCIAL SOLVENTS CORPORATION • SPECIALTIES DIVISION
Terre Haute, Indiana

Makers of NOR'WAY® and PEAK® Anti-Freeze



Testing Blocks . . . • Continued from Page 144

parts, such as steering equipment, motors and axles.

In its application, the part to be inspected is magnetized with a short ($\frac{1}{2}$ sec.) shot of very high amperage electric current. (The voltage, however, is so low that it is impossible to get a shock.) Finely powdered magnetic particles are then blown over the part and immediately build up over any crack being held by the magnetic field at the crack. Even the finest cracks become so obvious, that they cannot possibly be overlooked. The powder is available in grey, red and black and we decided to use grey (which is actually more silvery white) because it gives the best color contrast against any background we encounter on our blocks and heads.

Field Engineers of the Magnaflux Corporation, co-operated with Precision Engines, Inc., in the adaptation of this method to needs

and they soon realized that they had found the ideal solution to their problem. They purchased one of the standard machines for magnetization and powder application and installed it about 18 months ago. Their blocks are inspected while they hang, and are easily rotated for the inspection. They are magnetized by threading a length of electric cable through four cylinders as may be seen in the illustration, and passing the current through this coil. Threading and unthreading is quickly done with the flexible electric cable, and a magnetic field is developed in these blocks which shows all the cracks in one shot when the powder is applied with the portable powder gun.

With this fool-proof method a block can be inspected in from three to five minutes, including all handling. The average type of help found in a rebuilder's shop can be

trained in about one week to become expert Magnaflux inspectors for this application. (Magnaflux Corporation also takes complete charge of inspector training.)

The only material consumed in this inspection is the magnetic powder. At Precision Engines, Inc., they use about ten pounds of powder per month (\$1.15 per pound) during which period they inspect approximately 1,000 blocks and 2,000 heads.



Bob Becka

MANY CAR OWNERS WILL WELCOME THIS NEW **CHAMP-ITEM**



Here is a very simple replacement assembly, giving positive, easy and low cost mechanical gear shifting for Chevrolet cars, 1940 thru 1948 models. Can be installed in 20 minutes. List price \$3.00.

ORDER FROM YOUR JOBBER

CHAMP-ITEMS, INC.

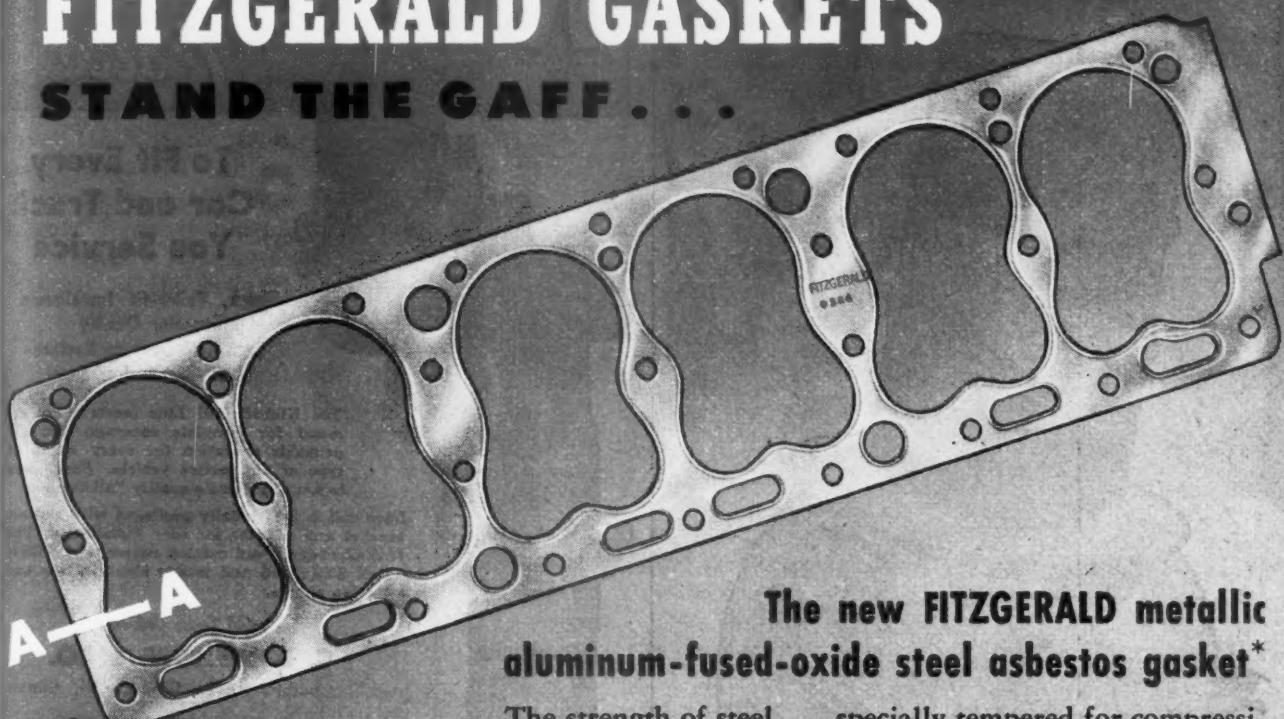
ST. LOUIS 14, MO.

No. 454
MECHANICAL GEAR SHIFT ASSEMBLY
for
CHEVROLET CARS
1940-48

be-
tors
flux
plete
l in
etic
nes,
s of
per
hey
eks

FITZGERALD GASKETS

STAND THE GAFF . . .

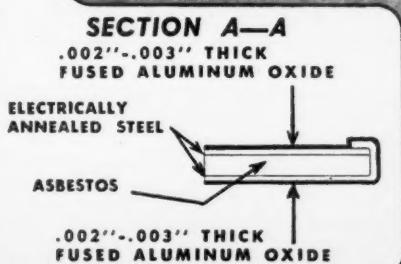


The new FITZGERALD metallic aluminum-fused-oxide steel asbestos gasket*

The strength of steel . . . specially tempered for compressibility and resiliency . . . is combined with aluminum's resistance to rust and corrosion in this new line of Fitzgerald gaskets which withstand highest compression tests where others fail. There's a Fitzgerald gasket for every engine.

The Fitzgerald Manufacturing Company, Torrington, Conn.

*T. M. Reg. U. S. Pat. Off.



Gasket craftsmen for 43 years

Says P. J. Fitzgerald . . .

Our metallic aluminum-fused-oxide steel asbestos gaskets have been tried and proven for many months. Therefore, I can say to you with all sincerity that we have never made a better gasket. We have kept pace with the industry for forty-three years and feel safe in saying to our customers that when better gaskets are made you can depend on Fitzgerald to make them.

P. J. Fitzgerald President



FITZGERALD
gaskets
SINCE 1906



The
WORLD'S FINEST THINNER

Briggs NO. 10 LACQUER THINNER

IS SUPERIOR IN EVERY WAY

- Superior because of TOP QUALITY INGREDIENTS
- Superior because of BALANCED FORMULATION
- Superior because of CONTROLLED MANUFACTURING

\$1.22 PER GALLON IN 53 GALLON DRUMS

BRIGGS FAMOUS ECONOMY THINNER NO. 99

FOR 99¢ PER GALLON

BETTER THAN ORDINARY THINNER—No. 99 has passed the Exacting Laboratory Tests. Guaranteed Satisfaction.

\$99 PER GAL. IN 53 GAL. DRUMS

See your Briggs Distributor or write direct to—

BRIGGS MANUFACTURING CO.

REFINISHING MATERIALS DIVISION

DETROIT 11, MICHIGAN



NIEHOFF

Coils

To Fit Every
Car and Truck
You Service

Quick, Tailor-fit Installation
Superior Quality
Each Coil Built to Restore
New Car Performance.



The Niehoff Coil Line meets every demand for complete coverage and dependable operation for every model or type of automotive vehicle. From core to housing there's quality "all the way."

Each coil is individually packaged with correct bracket and adapter for easy installation. The Niehoff easy-to-read catalog covers ALL IGNITION SYSTEMS and makes identification and selection simple.

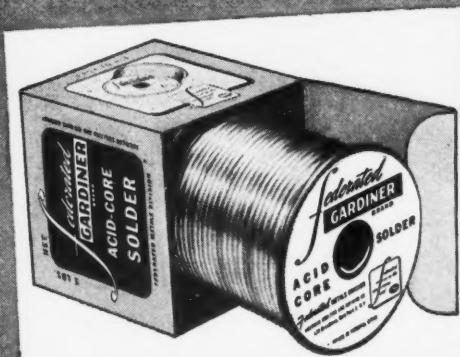
Ask Your Jobber

C. E. NIEHOFF & CO.
4920 Lawrence Ave., Chicago 30, Illinois

Branches: BOSTON 34, Mass., 234 Brighton Ave.
LOS ANGELES 15, Calif., 1330 W. Olympic Blvd.
NEW YORK 9, N. Y., 250 W. 34th Street

NIEHOFF Automotive Products

federated
GARDINER BRAND SOLDER
IS GOOD SOLDER!



Let's face it. Soldering is an exacting job. It pays to use the best solder to cut down on fuss and muss. Use Federated Gardiner brand Acid Core Solder . . . the flux is in the solder. Buy it in any commercial size or composition.

A PRODUCT OF
federated METALS
division of American Smelting and Refining Company
Whiting, Indiana (Chicago)



New Products

Continued from page 62

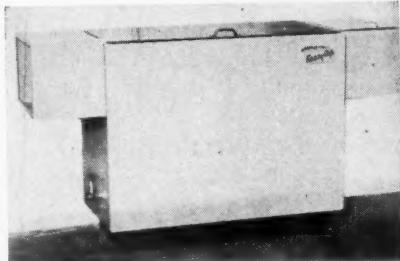
(For further information use coupon on p. 62)

306

The Bear Mfg. Co., Rock Island, Ill., is marketing front end and steering alignment service. This new 115-88 includes a completely redesigned alignment rack equipped with new type heads designed for checking of all alignment angles. The heads will handle all of the low front fender cars, according to the manufacturer. For corrective work on knee action and conventional axle cars, Bear's new No. 88 Flex-O-Power unit is included.

307

The Equipment Division of the Magnus Chemical Company, Inc., Garwood, N. J., announces a new addition to its line of cold parts



cleaning machines, the Magnus Krazy Dip Senior. It is especially designed for shops where the volume of parts to be cleaned does not warrant the installation of fully automatic cleaning equipment.

308

The Imperial Brass Manufacturing Company, Chicago, Ill., is marketing a new brass fitting stock for service shops, furnished in a metal cabinet with glass fronts.

The unit provides over 400 brass fittings of the 77 most needed types.

309

Industrial Engineered Products Co., Los Angeles, Calif., has developed the Torchmaster, a general utility, self-contained hand torch burning liquid petroleum gas. The torch will do light brazing, soldering, and innumerable heating operations. It burns upside down or at any angle and has a filtered burner that will not sputter or blow out.

(Continued on page 150)



Don't waste labor \$ on parts cleaning

... Clean your parts mechanically!

ON EVERY repair job, you pay your mechanics good money to scrub dismantled parts. You can save money . . . lower your charges to customers . . . make better use of your mechanics' time by cleaning the parts with mechanical agitation. And, the parts will be cleaner than is possible by hand scrubbing.

A Magnus Krazy-Dip Cleaning Machine in your shop will quickly pay for itself. You'll find more uses for it every day — it will soon be the most popular piece of equipment in your shop.

To go with your Krazy-Dip, you'll want Magnus 799 and Magnus 755 cleaning compounds . . . 799 to use in the main compartment of the Krazy-Dip for all general parts cleaning, and 755 in the small compartment for carburetors and fuel pumps. Both of these cleaners are noted for their superior cleaning qualities and ability to outlast all other cleaners of the same type.

Write today for complete information on this three-way set-up to end your parts cleaning problems.

MAGNUS CHEMICAL COMPANY • 174 South Ave., Garwood, N. J.

In Canada — Magnus Chemicals, Ltd., 4040 Rue Masson, Montreal 36, Que.

Service representatives in principal cities

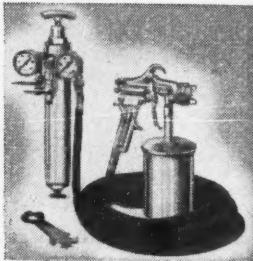


SPRAY IT - Better, Faster, For Less!

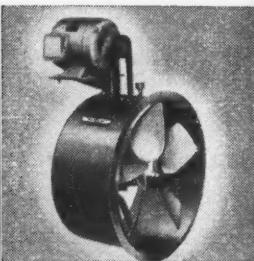


Better equipment means more profit from spray operations.
Specify Black Arrow...famous for "HOLLOW AIR" Spray Guns.

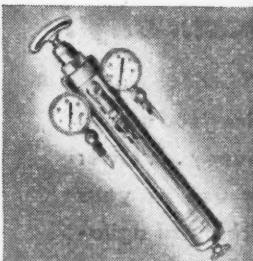
"SEE YOUR JOBBER"



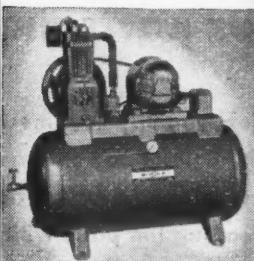
Black Arrow Siphon Feed Outfit. Complete with "HOLLOW AIR" gun, container, air regulator and purifier, hose and wrench.



Black Arrow Exhaust Units. Range from 12" to 42" diameters — meet all Underwriters' specifications.



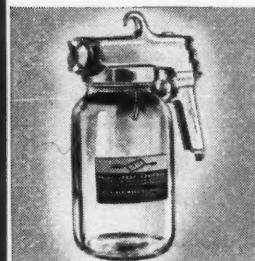
Black Arrow Air Conditioners. All price ranges—the only make fabricated of 100% non-rusting materials.



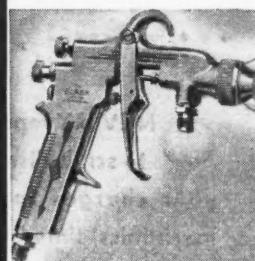
Black Arrow Compressors. All sizes and models, portable and stationary—1/3 to 15 H.P., single and two stage.



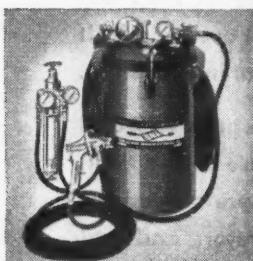
Black Arrow "HOLLOW AIR" Spray Gun. The finest all-around, all-purpose gun in use today. Try it!



Black Arrow FIBR-GUN. The only "finished" FLOCK gun on the market. All three controls at rear of gun.



Black Arrow General Utility Spray Gun. Lightweight, efficient—operates at minimum pressures with low air consumption.



Black Arrow Pressure Outfits. Range from two to fifteen gallons. Complete in every detail.

The Black Manufacturing Co.

Parkton 61, Maryland



EVERHOT
UNIFLEX
SEAMLESS LEAKPROOF
Bendable TAIL PIPES
BUILD MORE SALES
INCREASE PROFITS

EVERHOT PRODUCTS CO.
2001-9 W. CARROLL AVE. CHICAGO 12, ILLINOIS

BUY
BONDS

New Products

Continued from page 149

(For further information use coupon on p. 62)

310

The Lincoln Electric Company, Cleveland, Ohio, is marketing the "Lincwelder 60," a new small arc welder which operates off a standard 110 volt power and light circuit fused for 30 amperes. The "Linc-



welder 60" has a maximum output of 60 amperes at 25 volts and is said to be suitable for welding material 1/32 inch to 1/8 inch thick. It weighs 45 pounds. The manufacturer claims that it can be picked up by its handle, carried to the nearest 110 volt outlet, plugged in and used.

311

Dorman Products, Inc., Cincinnati, Ohio, is marketing the Dorman body service assortment No. 777, a complete assortment of sheet metal screws designed to meet the needs of auto body shops, large garages and fleet maintenance repair shops. This kit contains over 700 sheet metal screws of 30 different types and sizes. The container is made of heavy steel with each size and type of screw in individual sections. A diagram showing the position, stock number, exact dimensions and type of head is in clear view when the assortment is open.

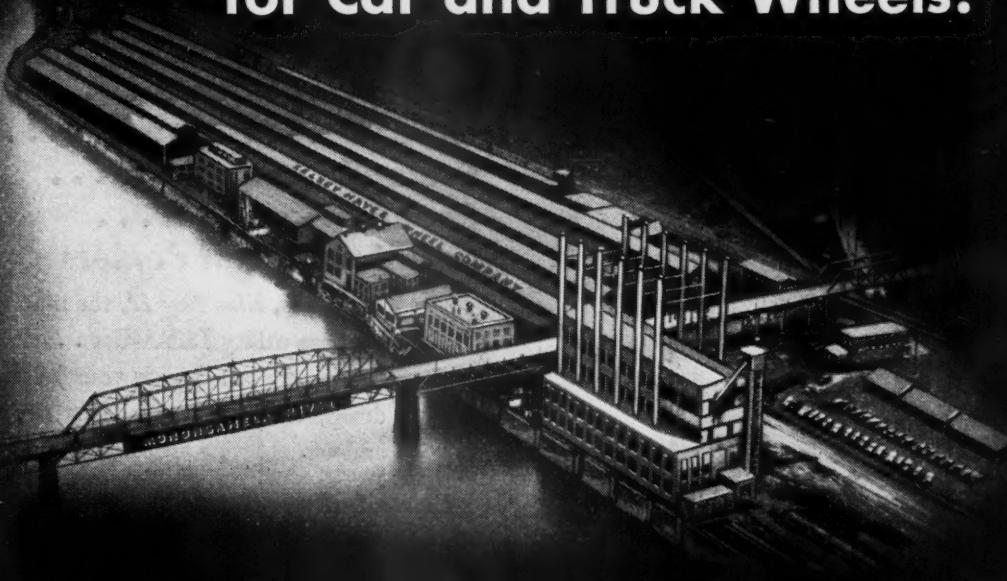
312

The Globe Hoist Company, Phila., Pa., announces a "pitless" type 2-Post auto hoist which requires no floor recesses for its superstructures. This hoist makes use of a unique above-the-floor superstructure design over both front and rear power cylinders. When in the "down" position, the rear 4" eccentrically-mounted rails and the flat cross-member of the "front post" rest on the floor to permit movement of motor vehicles on or off the lift.

KELSEY-HAYES

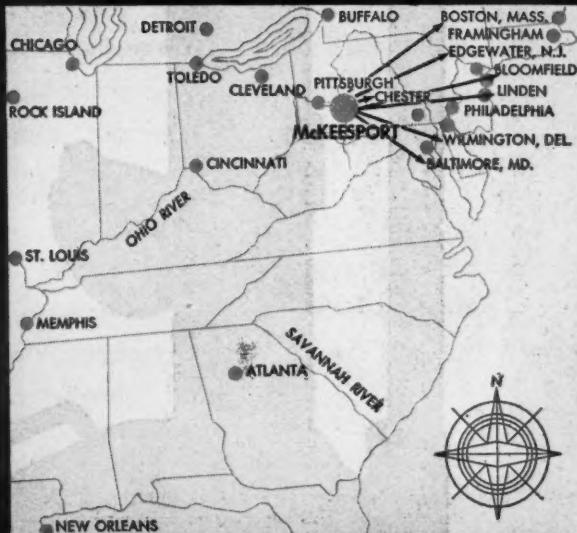
McKeesport, Pennsylvania Plant

Eastern Assembly Division for Car and Truck Wheels!



Located in the East at the
Source of Steel—On Main Rail,
Highway and Water Routes.

This Kelsey-Hayes McKeesport Plant, the chief source of wheels in Kelsey-Hayes' great 8-plant operation, is most economically located to supply eastern assembly plants. Right at the source of the world's leading steel production, and in the center of a remarkable water, rail and highway transportation system, Kelsey-Hayes efficiently serves every point in the east (and throughout the United States). By water, Kelsey-Hayes can even ship via the Ohio and Mississippi Rivers to southern points and the Pacific coast! It's Kelsey-Hayes for wheels of all kinds, for original equipment or changeovers!



ASSURES PROVEN PRODUCTS AT

KELSEY-HAYES WHEEL COMPANY
DETROIT 32, MICHIGAN



Wheels—Hub and Drum Assemblies—Brakes—"Vadraulic" Brake Power Units—for Passenger Cars, Trucks, Buses—made by Kelsey-Hayes' 4 Michigan Plants and Windsor-Canada Plant • "Magdraulic" Electric Brakes • "Lathan" Vacuum Power Brake Equipment for Tractor-Trailers—made by Kelsey-Hayes' South San Francisco-Lathan Plant • Wheels—Hubs—Axles—Parts for Farm Implements—made by Kelsey-Hayes' French & Hecht Plant at Davenport, Iowa.

WALKER

presents
service



BLUE BOY II

No. 707-2 TON CAPACITY

For service stations . . .
car dealers . . . garages . . .
tire and repair shops . . .
fleet service shops . . .
farm implement dealers



Here it is, *Blue Boy II*, the new Walker all-purpose utility Lift-A-Car . . . the jack of a thousand uses. Here is your jack specifically designed by Walker to meet the many new and varied lifting problems of modern service.

Conveniently operated from an upright position, *Blue Boy II* handles *all* cars. With its exceptionally great lifting range—20 full inches of power raise plus a 12-inch adjustment on the lifting hook—it starts low enough to get under any bumper, raises high enough to give ample wheel clearance from deepest skirted fenders.

Blue Boy II is ruggedly built to handle a wide variety of "service lifts." Service stations find it invaluable for tire changes, chains, wheel packing. Car dealers and independent maintenance shops need

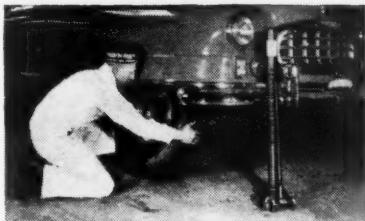
a *Blue Boy II* for every mechanic—a personal jack in every stall. In body shops, it's a natural for fender work. Fleets find it handy for inspection work, brake adjustments and many other jobs. And its high lift makes it a *must* for the tractor shop.

Two tons of handy hydraulic lifting power, *Blue Boy II* is the most versatile service jack on the market. No service operation can have too many of these great, new stand-up jacks. See them today . . . get yours now—at *Jack Headquarters*, your Walker Jack distributor.

WALKER MANUFACTURING CO. OF WISCONSIN • RACINE, WIS.

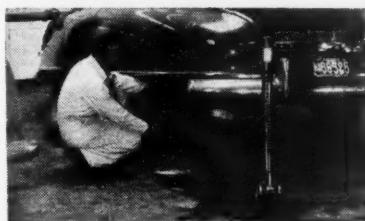
the most versatile hydraulic jack ever offered . . .

THE NEW ALL-PURPOSE UTILITY LIFT-A-CAR



SPEEDS UP TIRE AND WHEEL CHANGING—

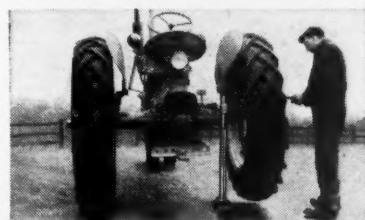
Lifts cars with deep skirted fenders high enough for easy wheel removal. No blocks . . . no extra jack needed. Good for chains and washing, too.



HANDY FOR BRAKE WORK—High lift gives plenty of room for brake work or front end inspections. Easy to handle, compact. Mechanics like Blue Boy II. It makes their job easier.



A BOON TO BODY WORK—Lifts high enough to provide convenient work room . . . speeds up the job. No blocking necessary. Helps in changing tail pipes, too, when extra clearance is needed.



TOPS FOR TRACTORS—This picture tells its own story. How else can a high tractor axle lift be made without blocks or extra jacks? Fine for repositioning wheels.



Convenient lifting handle, rigidly welded to base, makes Blue Boy II easy to lift and carry. An exclusive Walker feature.



Extra "Top column" lifting position provides additional height for lifting light trucks and farm vehicles at full jack capacity.

... plus these unexcelled exclusive Walker features:
LARGE FREE ROLLING WHEELS . . . 360° POSITIONING . . . ALL-CAR UNIVERSAL LIFTING HOOK . . . LARGE FLAT-BOTTOM "GRAVITY CENTERED" BASE . . . PROTECTED PUMP ASSEMBLY . . . STAND-UP HANDLE OPERATION . . . POSITIVE RELEASE CONTROL . . . STREAMLINED METALESCENT BEAUTY

WALKER leads in JACKS

ALSO MAKERS OF WALKER LIFTS, SILENCERS, OIL FILTERS

Current Engine and Tune-up Specifications

| ENGINE | | TUNE-UP DATA | | | | | | | | | | |
|---------------------------------|---|--------------|-------|----------|------------|-------------|-------------|-----------|--------|---------------|-----------|-----------|
| MAKE AND MODEL | No. of Cylinders, Bore and Stroke in. (Cu. in.) | Rings | | VALVES | | IGNITION | | STEERING | | Cylinder Deg. | | |
| Buick..... Eight, 50 | 8-3½x4½ | 30.6 | 248.1 | 114 | AC-48 | .015 | 4BT | A 5½ | 13 | +1½ to 1½ | | |
| Buick..... Eight, 70 | 8-3½x4½ | 37.8 | 320.2 | 118 | AC-48 | .015 | 4BT | Fy A 7 | 16/16½ | +1½ to 1½ | | |
| Cadillac..... 61, 60 (a) | 8-3½x4½ | 46.5 | 331.0 | 160-3800 | 7.5 | 120 | AC-48 | .001 | 19BT | None | +1½ to 1½ | |
| Cadillac..... 75 | 8-3½x4½ | 46.5 | 331.0 | 160-3800 | 7.5 | 120 | AC-48 | .001 | 19BT | None | +1½ to 1½ | |
| Chevrolet... Six, GJ-GK | 116 | 6-3½x4½ | 29.4 | 216.5 | 90-3300 | 6.6 | 110 | AC-46½ | .001 | 1BT | Fy A 5 | 16 |
| Chrysler..... Six, C-45 | 125½ | 6-3½x4½ | 28.3 | 250.6 | 116-3600 | 7.0 | ... AL-AR-5 | .001 | 12BT | VD A 5 | 17 | |
| Chrysler..... Six, C-46 | 131½ | 6-3½x4½ | 33.8 | 235.6 | 135-3400 | 7.2 | ... AL-AR-5 | .001 | 12BT | VD A 5 | 17 | |
| Chrysler..... Eight, C-47 | 146½ | 8-3½x4½ | 33.8 | 232.5 | 135-3400 | 6.7 | 130 | AL | .001 | 12BT | VD A 5 | 17 |
| Crosley..... Four, CD-49 | 80 | 4-2½x2½ | 10.0 | 44.0 | 26.5-5400* | 7.8 | ... AL-ANTE | .009 | 5BT |020 | 4BT | |
| De Soto..... Six, S-13 | 125½ | 6-3½x4½ | 28.3 | 236.6 | 112-3600 | 7.0 | ... AL-AR-5 | .014 | 12BT | VD A 5 | 17 | |
| Dodge .. Six, D-29 D-30 (6) | 6-3½x4½ | 25.3 | 230.2 | 103-3600 | 7.0 | ... AL-AR-5 | .014 | 8BT | VD A 5 | 15 | | |
| Ford..... Six, 9BA | 114 | 6-3½x4½ | 28.1 | 225.8 | 95-3300 | 6.8 | 110 | CH-H10 | .010 | 11BT | VD A 4 | 17.3 |
| Ford..... Eight, 9BB | 114 | 6-3½x4½ | 32.5 | 239.4 | 100-3600 | 6.8 | 95 | CH-H10 | .010 | 11BT | VD A 4 | 17.3 |
| Frazer..... Six, 495-496 | 123½ | 6-3½x4½ | 26.3 | 226.2 | 112-3600 | 7.3 | 120 | AL-A5 | .003 | 10BT | VD A 5 | 13½ |
| Hudson..... Six, 491-492 | 123½ | 6-3½x4½ | 30.4 | 262.0 | 121-4000 | 6.5 | 119 | CH-J7 | .014 | 10BT | VD A 5 | 10 to ±1 |
| Hudson..... Eight, 493-494 | 123½ | 8-3½x4½ | 28.8 | 284.0 | 128-4200 | 6.5 | 119 | CH-H10 | .003 | 10BT | VD A 5 | 10 to ±1 |
| Kaiser..... Six, 491-492 | 123½ | 6-3½x4½ | 26.3 | 226.2 | (d)-3600 | 7.3 | 120 | AL-A5 | .003 | 10BT | VD A 5 | 10 to ±1 |
| Lincoln..... 9EL-9EH (b) | 8-3½x4½ | 39.2 | 336.7 | 152-3600 | 7.0 | 110 | CH-H10 | .003 | 14BT | VD A 6 | 3½ to 5½ | |
| Mercury..... 9CM | 118 | 8-3½x4½ | 32.5 | 285.4 | 110-3800 | 6.8 | 115 | CH-H10 | .003 | 14BT | VD A 6 | 3½ to 5½ |
| Nash..... 600..... Six, 4940 | 112 | 6-3½x4½ | 23.4 | 172.6 | 82-3800 | 7.0 | 120 | AL-A5 (m) | .003 | 10BT | VD A 6 | 3½ to 5½ |
| Nash..... Amb. Six, 4980 | 121 | 6-3½x4½ | 27.3 | 234.8 | 112-3400 | 7.0 | 125 | 2-154 | .015 | 10BT | VD A 6 | 3½ to 5½ |
| Oldsmobile..... 76 | 119½ | 6-3½x4½ | 29.9 | 257.1 | 105-3400 | 6.5 | 125 | AC-45 | .011 | 5BT | None | 20 to -3½ |
| Oldsmobile..... 88 | 119½ | 6-3½x4½ | 45.0 | 303.7 | 135-3800 | 7.2 | 136 | AC-44 | .011 | 5BT | None | 20 to -3½ |
| Oldsmobile..... Futuramic 98 | 125 | 8-3½x4½ | 45.0 | 3600 | 7.0 | ... AC-44 | .011 | 5BT | None | 20 to -3½ | 20 to -3½ | |
| Packard..... Eight & Del. 8 | 120 | 8-3½x4½ | 39.2 | 288.0 | 130-3800 | 7.0 | ... (k) | .011 | 10BT | None | 20 to -3½ | |
| Packard..... Super Eight 120 | 120 | 8-3½x4½ | 39.2 | 322.0 | 145-3600 | 7.0 | ... (k) | .011 | 10BT | None | 20 to -3½ | |
| Packard..... Custom Eight 127 | 127 | 8-3½x4½ | 39.2 | 356.0 | 160-3600 | 7.0 | ... (k) | .011 | 10BT | None | 20 to -3½ | |
| Playboy..... A48 | ... | 4-3½x4 | 16.9 | 133.0 | 48-... | 7.1 | 126 | CH-J10 | -0.03 | 1-187 | 30 | 10 to +1 |
| Plymouth..... Six, P17, P18 (t) | 6-3½x4½ | 25.3 | 217.8 | 97-3600 | 7.0 | ... AL-ASR | -2-1½ | 45 | .034 | 0.08H | .006 | 10 to +1 |
| Pontiac..... Six, 25 | 120 | 6-3½x4½ | 30.4 | 239.2 | 83-3400 | 6.5 | 191(1) | AC-45 | .010 | 12BT | CC 0.025 | 10 to +1 |
| Pontiac..... Eight, 27 | 120 | 8-3½x4½ | 33.8 | 248.9 | 106-3800 | 6.5 | 189(1) | AC-45 | .010 | 12BT | CC 0.025 | 10 to +1 |
| Studebaker..... Six, '8G | 112 | 6-3½x4½ | 21.6 | 169.6 | 80-4000 | 6.5 | 105 | CH-J7 | -2-(6) | 45 | 0.16C | 10 to +1 |
| Studebaker..... Six, '16A | 119 | 6-3½x4½ | 26.3 | 226.2 | 94-3600 | 6.5 | 105 | CH-J7 | 2-1½ | 45 | 0.16C | 10 to +1 |
| Willys..... Six, 663 | 104 | 6-3½x4½ | 21.6 | 148.5 | 72-4000 | 6.4 | 110 | AL-A7-F | 2-1½ | 45 | 0.14 | 10 to +1 |
| | | | | | | | | | | | | 10 to +1 |

ABBREVIATIONS

- With Standard Accessories
- ± With or Minus 1½"
- † At ½" Camber
- △ Depression in Camshaft Gear
- Do not recommend using a dwell master for checkup point opening

- (f) At 1000 Rpm.
- (g) Top Ring.
- (h) Middle Ring ½" below top.
- (i) Bottom Ring ½" below middle.
- (j) Auto-Lite B4 or AC104 or Champion 4A.
- (k) No. 1-003.
- (l) No. 2-1235.
- (m) 1½" to 1¾" Lower Ring.
- (n) Model 492-112.

- (o) Before Top Center
- (p) Flywheel Automatic Adjustment
- (q) Cold
- (r) Rods removed from above
- (s) Automatic Adjustment Above
- (t) Auto-Lite P4 or AC104 or Champion 4A.
- (u) Champion Spark Plug Co.
- (v) Crankshaft Pulley
- (w) Timing Gears
- (x) Distributor Housing
- (y) Vibration Damper
- (z) After Top Center

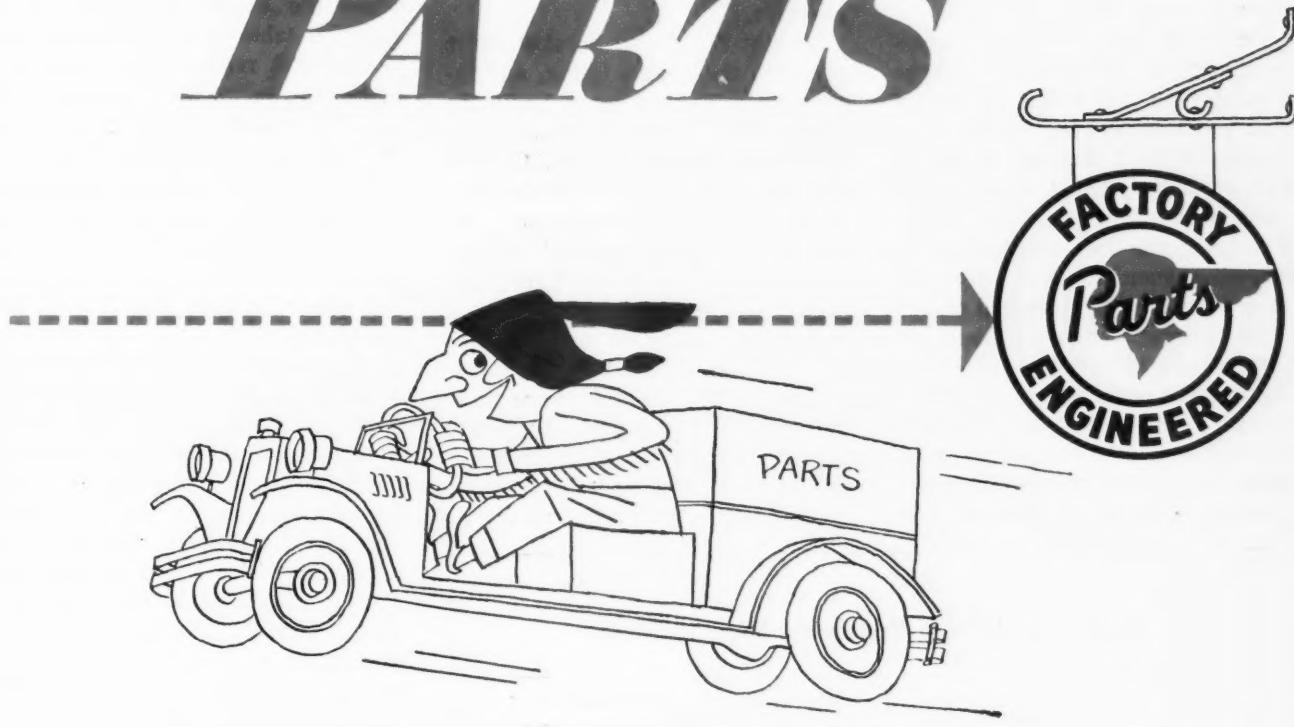
- (a) D29=115°; D30=129½°
- (b) P17=111°; P18=118½°
- (c) AA=Automatic Adjustment
- (d) AC=Auto-Lite
- (e) AL=Auto-Lite
- (f) A5=AC4 or Auto-Lite A5
- (g) Upper Ring ½" Lower
- (h) BT=Before Top Center
- (i) HA=Hydraulic Automatic Adjustment
- (j) CG=Crankshaft and Camshaft Sprockets
- (k) CH=Champion Spark Plug Co.
- (l) CP=Crankshaft Pulley
- (m) DH=Distributor Housing

- (a) D29=115°; D30=129½°
- (b) P17=111°; P18=118½°
- (c) AA=Automatic Adjustment
- (d) AC=Auto-Lite
- (e) AL=Auto-Lite
- (f) A5=AC4 or Auto-Lite A5
- (g) Upper Ring ½" Lower
- (h) BT=Before Top Center
- (i) HA=Hydraulic Automatic Adjustment
- (j) CG=Crankshaft and Camshaft Sprockets
- (k) CH=Champion Spark Plug Co.
- (l) CP=Crankshaft Pulley
- (m) DH=Distributor Housing

INDEPENDENT REPAIRMEN COUNT ON...

PONTIAC

PARTS



Pick Up Your Phone . . .

and the Parts Are On the Way!



Everything you need to know about every Pontiac part! Makes it easier, quicker to order by phone. Ask for your copy at your Pontiac Dealer's parts department.

Your Pontiac Dealer stands ready to save you time and effort on every Pontiac repair job.

Just call him for any Pontiac parts in his large stock, and they'll soon be on their way to you—at a liberal discount to allow you a normal profit.

When it's so easy to get Pontiac Factory-Engineered Parts why not insure the goodwill of all your Pontiac owners by using only Pontiac parts on Pontiac cars.

JUST CALL YOUR LOCAL PONTIAC DEALER!



Voltage Regulator . . . Continued from page 120

if necessary, install a good service battery temporarily.

Give the regulator a careful visual inspection, watching for evidence of burning, loose connections and excessive moisture inside the cover. See that all electrical connections are clean and free from corrosion, as this small amount of resistance can have a profound effect on the readings when working in tenths of a volt.

Only two instruments are necessary to test and adjust a voltage regulator—a voltmeter graduated in .1 volt readings and an ammeter graduated in 1 ampere readings. The ammeter should have heavy, short leads of low resistance.

Connect the instruments in the following manner. Disconnect the wire from the "B" terminal on the regulator and to this terminal connect one lead of the ammeter. Connect the other ammeter lead to the wire which was disconnected. Connect one lead from the voltmeter to the "B" terminal on the regulator side of the ammeter con-

nexion, while the other voltmeter lead is connected to the ground terminal or to the base of the regulator.

The regulator should be tested at normal running temperature (see specification table). Run the car for about 15 minutes before taking readings. Tape a thermometer about 2 in. away from the base of the regulator to check this temperature.

To test the circuit breaker, start out with the engine idling, and increase the engine speed until the points close. This will be indicated by a slight drop in voltage. Consult the specification tables for the voltage at which this should occur. On the ammeter, the points' closing should take place at about zero amperes. (See table of specifications.) If it is necessary to make adjustments to the circuit breaker, check first to see that the points are clean and smooth. When dressing up the points, file them with a file made for that purpose, moving it parallel and lengthwise to the armature. Don't

remove too much—just enough to make a smooth contact surface. Complete the process by passing a piece of linen tape damped in carbon tetrachloride between the points, followed by a dry piece of tape.

The closing voltage of the circuit breaker is adjusted by bending the lower armature spring bracket. Opening voltage is changed by adjusting the contact point spacing, raising or lowering the stationary contact. The gap should be kept above the .015 in. minimum. Consult the table of specifications for the correct readings. Air gap adjustments between the magnet core and the armature should be made by bending the armature stop.

To test the voltage regulator unit, allow the cover to remain on the regulator. Run the engine at a speed equivalent to about 30 mph and the regulator, with the cover on, should hold the voltage within the limits specified in the table. Adjustment is made by changing the spring tension. Bend the lower spring brackets down to increase the voltage setting, up to decrease the setting. The air gap is checked between the magnet core and the armature. Using a .048 in. pin gage and a small test light, place the gage between the armature and the magnet core. Connect a test light in series with the regulator base and the field terminal and battery. Take measurements on the contact side next to the brass armature stop pin. With the high limit pin gage in place, the light should stay lit when the armature is depressed. When the low limit pin gage is in place, the light should go out when the armature is depressed. The gap is adjusted by loosening the upper point bracket retaining screw and moving the bracket until the light stays on or goes out, according to the pin gage which is being used. Caution should be observed so that the points stay in perfect alignment while adjustments are being made. Also, be sure that the spring upon which the movable contact is mounted is parallel with the armature and is straight.

Point gap clearance is checked with the armature held down against the stop pin. Clearance
(Continued on page 166)

Auto-Lite Voltage Regulator Specifications

| Make and Model of Car | Cutout Relay | | | Voltage Regulator | | | Current Regulator | | |
|-----------------------|---------------------|----------------------------------|-----------------------|-------------------|------------------|-----------------------|-------------------|------------------|-----------------------|
| | Voltage at Closing | Ammeters in Open Reverse Current | Average Air Gap (In.) | Volts | Temperature (°F) | Average Air Gap (In.) | Ampere | Temperature (°F) | Average Air Gap (In.) |
| Chrysler | C-45 | 6.4-7.0 | 4-6 | .031-.034 | 7.23-7.53 | 70 | .048-.052 | *40-51 | .048-.052 |
| | C-46 | 6.4-7.0 | 4-6 | .031-.034 | 7.23-7.53 | 70 | .048-.052 | *45-55 | .048-.052 |
| | C-47 | 6.4-7.0 | 4-6 | .031-.034 | 7.23-7.53 | 70 | .048-.052 | *50-62 | .048-.052 |
| Crosley | CD | 6.4-7.0 | 4-6 | .032 | 7.35 | 70 | .050 | 34-36 | .050 |
| | | | | | | | | | |
| De Soto | S-13 | 6.4-7.0 | 4-6 | .031-.034 | 7.23-7.53 | 70 | .048-.052 | *50-62 | .048-.052 |
| | Dodge | D29-30 | 6.4-7.0 | 4-6 | .031-.034 | 7.23-7.53 | 70 | .048-.052 | *40-51 |
| Frazer | 495-496 | 6.4-7.0 | 4.5 | .032 | 7.35-.15 | 70 | .050 | 34-36 | .050 |
| Hudson | 8, 491-492 | 6.4-7.0 | 2 | .031-.034 | 7.1-7.4 | 70 | .048-.052 | | |
| | 8, 493, 494 | 6.4-7.0 | 2 | .031-.034 | 7.1-7.4 | 70 | .048-.052 | | |
| Kaiser | 491-492 | 6.4-7.0 | 4.5 | .032 | 7.35-.15 | 70 | .050 | 34-36 | .050 |
| Packard | 8, 2201-2211 | 6.5-7.0 | 4-6 | .032 | 7.2-7.5 | 70 | .050 | 35 | **H-C .050 |
| | Super 8, 2202-22-32 | 6.5-7.0 | 4-6 | .032 | 7.2-7.5 | 70 | .050 | 35 | **H-C .050 |
| | Cust. 8, 2206-26-33 | 6.5-7.0 | 4-6 | .032 | 7.2-7.5 | 70 | .050 | 35 | **H-C .050 |
| Plymouth | P17-18 | 6.4-7.0 | 4-6 | .031-.034 | 7.23-7.53 | 70 | .048-.052 | *40-51 | .048-.052 |
| Studebaker | 8G | 6.4-6.6 | 4-6 | .036 | 7.35 | 70 | .050 | 34-36 | .050 |
| | 16A | 6.4-6.6 | 4-6 | .036 | 7.35 | 70 | .050 | 34-36 | .050 |
| Willys-Jeepster | VJ-2 | 6.4-7.0 | 4-6 | .032 | 7.2-7.5 | 70 | .050 | 34-36 | .050 |
| | 4-63 | 6.4-7.0 | 4-6 | .032 | 7.2-7.5 | 70 | .050 | 34-36 | .050 |
| | 6-63 | 6.4-7.0 | 4-6 | .032 | 7.2-7.5 | 70 | .050 | 34-36 | .050 |

* Higher value denotes initial temporary capacity rating. Bi-metal thermostat hinge reduces output to lower value after 25-30 minute operation of full output.

** Hot or Cold.

A NEW
AND IMPROVED

Saginaw

RECIRCULATING-BALL
Bumper Jack

FITS ALL CARS INCLUDING '49 MODELS

It's ready for you NOW—phone your United Motors distributor and ask him to show you the new Saginaw Bumper Jack as soon as possible.

The 1949 model of this famous and unique jack means a wider appeal and more profits for you. It is stronger, smoother operating, and lifts more weight. The base is removable for easier storage. The handle folds into position along the shaft and cannot become detached and lost.

Jack up your profits by showing this amazing new bumper jack to every customer—it sells itself! Call your United Motors distributor NOW!

TESTED AND PROVED PRINCIPLE!

Rolling balls are inserted between threads where they recirculate through a special race-way and continuously reduce friction to increase efficiency.



Saginaw Recirculating-Ball Bumper Jacks are available through United Motors distributors. Call yours today!



Saginaw
STEERING GEAR DIVISION
General Motors Corporation, Saginaw, Michigan

STEERING GEAR ASSEMBLIES • STEERING LINKAGE ASSEMBLIES
PROPELLER SHAFTS • DIESEL ENGINE AND AIRCRAFT PARTS



DON'T LET YOUR CUSTOMERS GET CAUGHT WITH THEIR TIRES DOWN



Letting your customers get caught with their tires down in a roadside flat is one way to influence them—but not favorably.

That's why when you need tire maintenance equipment and accessories, valves, cores, caps, vulcanizers, and the like, it's safest to say "Schrader." Not only that, it's easier to order—Schrader makes everything you need.

There's another thing. Your customers know and recognize Schrader Quality—Schrader Experience. They have seen Schrader advertisements like these over many, many years. They help make selling Schrader easier.

TAKE GAUGES FOR EXAMPLE.

Most motorists know the reliability of Schrader gauges. They stand up longer.

HANDLING SPARK-PLUG TIRE PUMPS?

Every motorist needs one and the name Schrader is the best known.

WHEN YOU NEED VALVE CORES.

Order Schrader in the handy 100- (20 boxes of five) packages for quick resale—and for your own use with each tube repair, buy them in the 100 unit cartons.

BUY CAPS THE SAME WAY.

BUY SCHRADER SERVICE GAUGES FOR YOUR OWN USE, and be sure you're *always* right when you check a tire pressure.

**DON'T SELL LESS THAN THE BEST—
DON'T USE LESS THAN THE BEST—**

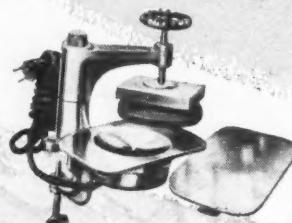
BUY SCHRADER!

ONE SOURCE . . . ONE RESPONSIBILITY

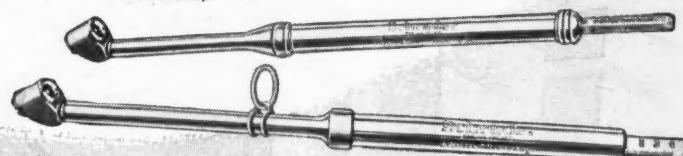
Valves • Cores • Caps • Gauges • Vulcanizers • Air Chucks • Valve Converters

Schrader
PRODUCTS
CONTROL THE AIR

Better valve replacements and tube repairs are sure with a Schrader No. 8601 electric vulcanizer at \$17.00 (dealer price).



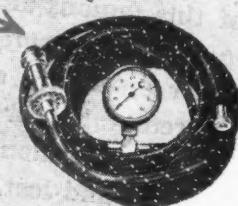
7188 BH for everyday use at \$3.35, 8106 B Master gauge to gauge the accuracy of all your tire gauging devices, at \$4.20 (dealer prices).



A. SCHRADER'S SON, Division of Scovill Manufacturing Company, Incorporated, BROOKLYN 17, NEW YORK
World's Largest Manufacturer of Tire Valves, Gauges and Accessories



Eye catching display of No. 5050 gauges gives that "buy it now" nudge to customers. Show 'em and sell 'em at \$1.60 per gauge.



Another fast seller. Put them up front and sell Spark Plug Tire Pumps for \$5.00



Handy boxes of 5 retail fast for 35¢ when you let the people see them.



For repair work buy the bulk cartons of 100 caps or cores at real savings.

*Completely
NEW*

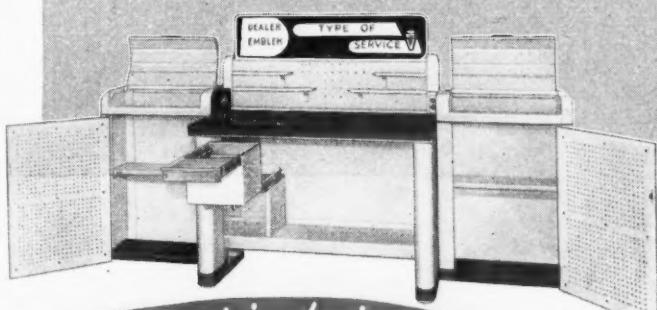
Lincoln

Service MERCHANDISERS

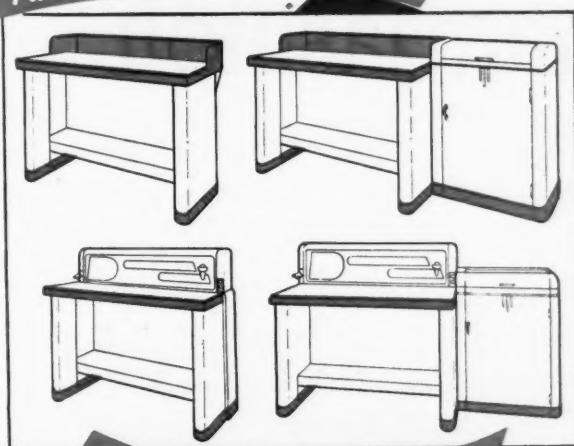


Model 2766

- 1 Storage Cabinets 3 Work Bench—for Vise, etc.
- 2 Parts Washer 4 Tool Locker



functional in design...



sectional in application...



Bullneck Surface Check Grease
Fitting...the modern fitting with
the ball in the top.

StyEngineered

**Equipment that Really
Sells Service**

Lincoln brings to the automotive service industry a brand new conception in service merchandising equipment—designed to increase the mechanic's efficiency . . . sectionally constructed to provide a selection to serve any specific requirement . . . and modernly styled to inspire customer confidence.

Lincoln Service Merchandisers are Styengineered to meet the requirements of all types of automotive services—As complete units, they provide low cost efficiency, eye-appeal, and identification to individual departments in large service stations . . . Or, small shops can start with the work bench as a basic unit, making additions to meet expanding service needs.

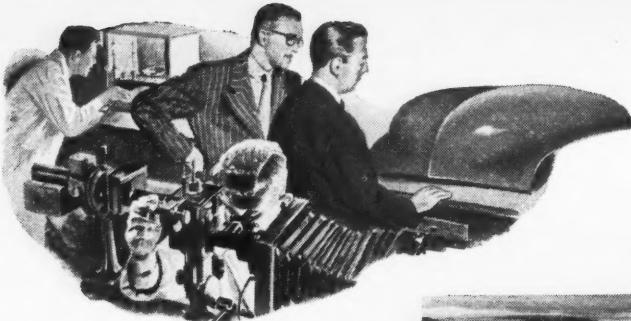
Install Lincoln Service Merchandisers now. Save time . . . save money — watch your service profits grow. Ask your Wholesaler for complete information, or write us for Bulletin No. 512.

A49-8

LINCOLN

Leaders in Lubricating Equipment for a quarter century

LINCOLN ENGINEERING COMPANY • 5710 NATURAL BRIDGE AVE., ST. LOUIS 20, MO.



Metal-probing microscopes pry into the nature of sheet metals to make sure they can be formed in the graceful, sweeping curves specified by designers.



With the same precise skill lavished on fine jewelry, craftsmen carve the dies from which come door handles and other body fittings.

Style Note for the Profit-Minded

You deal in fashion, as well as comfort and performance.

And so, we think you'll be especially interested in this ad which tells America's car-buyers who designs the smartest things on wheels—and why and how.

We think you'll agree that the dealer who handles cars that set the pace in the style parade also should set the pace in his area.

This ad, by the way, is eye-appealing too—in its original form as a full-color spread in America's national magazines—the latest in GM's "Key" parade.



Key to smart fashion

There's much more to car styling than meets the eye.

It takes, first of all, the skill and judgment to create styles which are right.

But it also takes expert research, engineering

and production to translate fresh new designs into a gleaming reality of glass and metal.

The reason that GM styling pleases so many car owners is that so many people in General Motors make it their full-time job to keep ahead of the style parade.

THE KEY TO A GENERAL MOTORS

Your key to
Greater Value



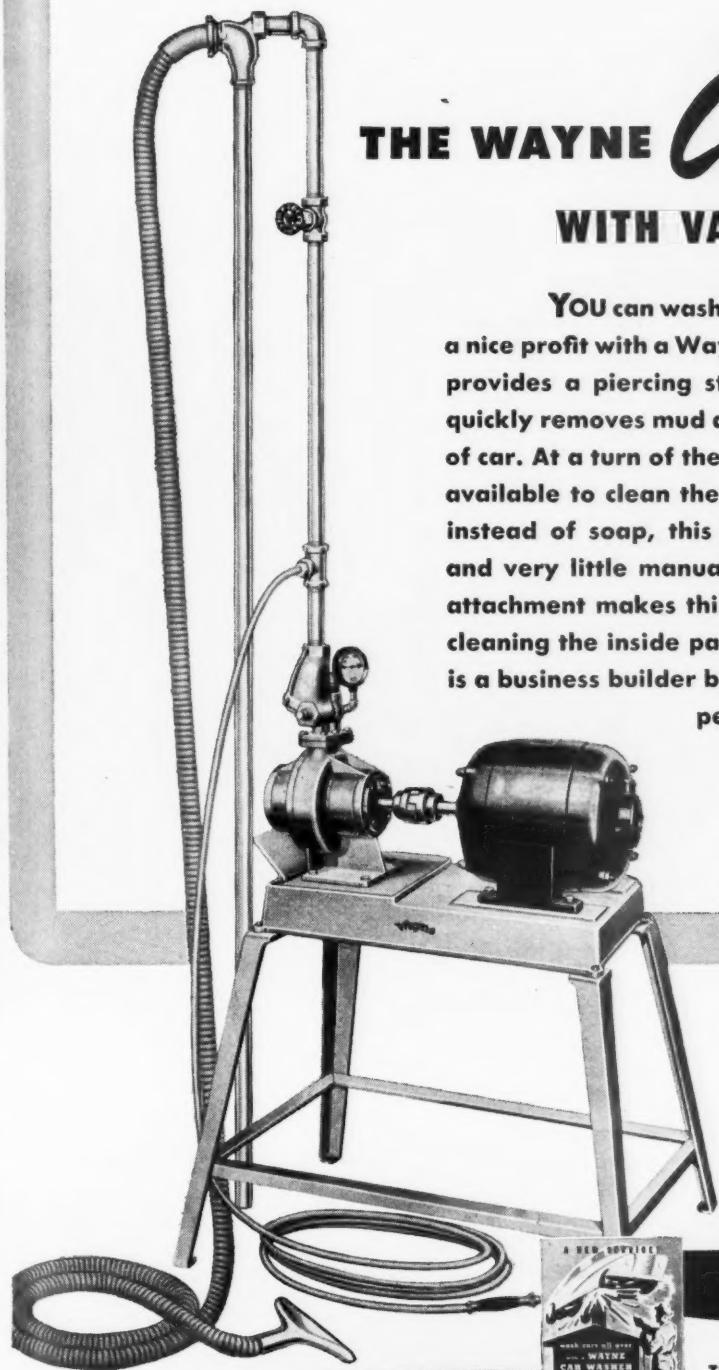
CAR More and better things for more people

GENERAL MOTORS

CHEVROLET • PONTIAC • OLDSMOBILE • BUICK • CADILLAC • BODY BY FISHER • GMC TRUCK & COACH

NOW! HENRY J. TAYLOR on the air every Monday evening over the ABC Network, coast to coast.

A BUSINESS BUILDING SERVICE



THE WAYNE *CarWasher* WITH VACUUM ATTACHMENT

YOU can wash cars quickly with little labor and make a nice profit with a Wayne Car Washer. The adjustable nozzle provides a piercing stream at 300 pounds pressure which quickly removes mud and encrusted grease from under parts of car. At a turn of the nozzle a large volume gentle spray is available to clean the body. Used with new wetting agents instead of soap, this spray cleans quickly without streaks and very little manual finishing is needed. An inexpensive attachment makes this power washer a vacuum cleaner for cleaning the inside parts of the car. The Wayne Car Washer is a business builder because every wash customer is a prospect for many other profitable services.



Complete merchandising plan . . . letters, newspaper advertisements, and display signs to help you increase your business furnished with a Wayne Car Washer.

MAIL NOW!

THE WAYNE PUMP COMPANY • FORT WAYNE 4, INDIANA
504 Tecumseh Street

Please tell us more about the Wayne Car Washer and the merchandising plan furnished with it. We are interested

NAME _____

ADDRESS _____

CITY _____

STATE _____

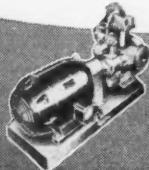
NATIONWIDE
SERVICE



HOSE REELS



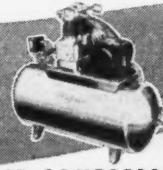
AUTO HOISTS



BULK PUMPS



DISPENSING PUMPS



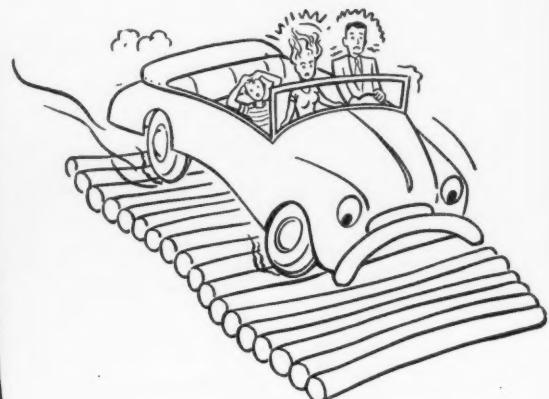
AIR COMPRESSORS

Briggs' theme song for Spring—



a joy ride- not a jar ride-

BRIGGS
SHOCK ABSORBERS



Every time new models come out, more cars are equipped with direct-acting shocks. This Spring, more cars will have them than ever before. As you head into the big Spring season, here are some profit-making points to remember:

For "jar rides" caused by faulty shocks, there is only one sure cure . . . new shock absorbers. And to restore "joy ride" comfort in any car, the finest shocks you can use are *direct-acting Briggs!*

Briggs Shock Absorbers embody the best in direct-acting design. They are set and sealed at the factory to give smooth, safe ride control on any road, in any weather. And their rugged, "Steel-Tite" construction is proof against leaks for the life of the shock.

Your customers will be coming in soon for Spring service. Check every car for faulty shocks! Where new

shocks are needed, replace with direct-acting Briggs. There's no surer way of winning your customer's confidence—and his business next time he needs repairs!

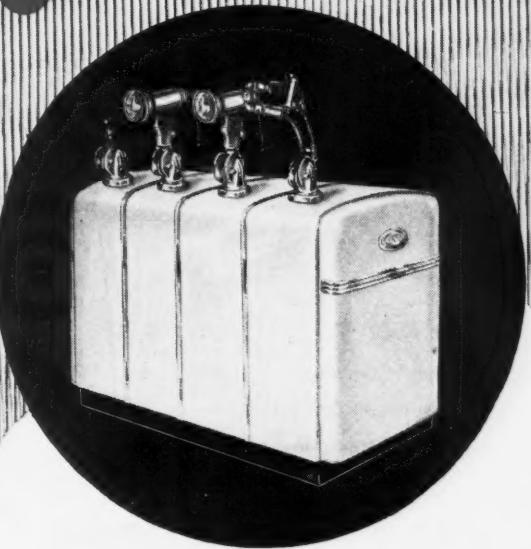
THE BRIGGS SHOCK ABSORBER COMPANY • CLEVELAND 3, OHIO

BRIGGS
SHOCK ABSORBERS



Quickly available
from your
NAPA Jobber.

*for the ride of your life-
for the life of your car"*



Modern Lube Equipment For Every Need

- Smart, New Streamlined Design
- Dozens of New Work-Saving Features
- Complete Line of Stationary and Portable Units, Wall Batteries, Overhead, Wall and Floor-Mounted Reels, Gun Fillers, Grease Guns, Spring Packers, Vacuum Cleaners, Accessories
- Manufacturers of Equipment for the Oil Industry for More Than Eighty Years

**Lubrication Equipment
Gasoline Pumps
Hydraulic Lifts
Air Compressors
Air Meters**

GILBERT & BARKER MANUFACTURING COMPANY
WEST SPRINGFIELD, MASS. • TORONTO, CANADA

MAIL COUPON NOW For New Color Catalog



Gilbert & Barker Manufacturing Company
West Springfield, Mass.

Please send me your new catalog on your complete line of lubrication equipment.

Name

Address

City Zone State
(if any)



"Come In, America!"

It's the old, oft told "better mouse-trap" story brought up-to-date. The better and more modern equipment you have in your shop, the more car owners will drive in through your door.

Modern equipment not only brings them in . . . it gives you the means of handling more business without enlarging your space. It turns the work out quicker. It means *more profit*.

Your initial outlay will be small. On Commercial Credit's Automotive Equipment Plan, you can install what you need . . . pay for it as it earns. Ask your jobber about it.

THE BEST EQUIPPED SHOP
GETS THE PROFITABLE BUSINESS

BUY . . . AND FINANCE . . .
THROUGH YOUR JOBBER

ONE CONTRACT . . . ONE COST
. . . INSURANCE INCLUDED



If you don't know about A E P . . . ask your jobber.

COMMERCIAL CREDIT CORPORATION

A Subsidiary of

Commercial Credit Company, Baltimore • Capital and Surplus \$95,000,000

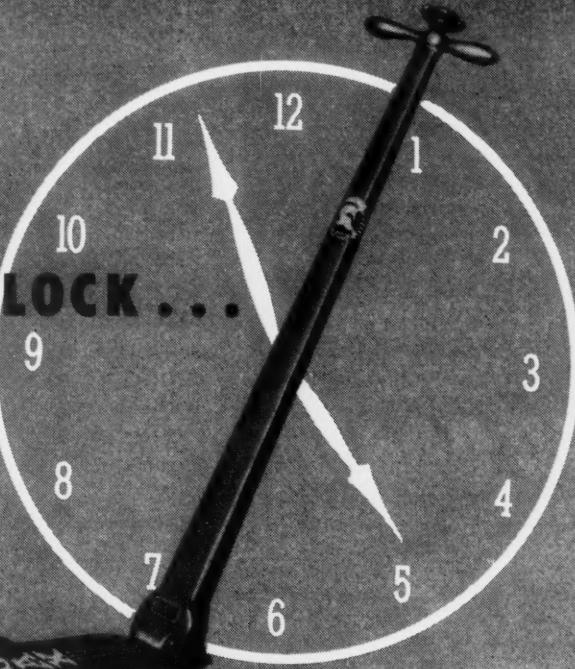
MORE THAN 300 OFFICES IN PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

AJAX

TURNS BACK THE CLOCK...

No. 2784

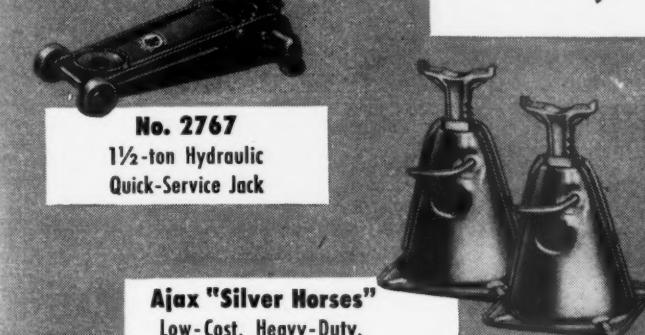
4-ton Sturdy All-Purpose
Hydraulic Service Jack



No. 2711
Famous 1-ton Mechanical
Quick-Service Jack



No. 2767
1½-ton Hydraulic
Quick-Service Jack



Ajax "Silver Horses"
Low-Cost, Heavy-Duty,
Adjustable Axle Supports

AND SPEEDS UP YOUR SERVICE VOLUME

• Meet the greatest time-savers in all jack history—the Ajax line of hydraulic and mechanical service jacks and safety supports. Every piece of this sturdy modern, streamlined shop equipment is as efficient as it is useful.

The new, improved Ajax hydraulic jacks give you the speedy fool-proof performance you need in today's highly competitive service market. The outstandingly popular 1-ton mechanical quick service jack offers you ruggedness and power never found before at such a low price. And the "Silver Horses"—famous Ajax axle supports—assure the safety of your mechanics while releasing expensive jacks to other services.

With a team like this you can knock valuable minutes off every job... cut labor costs... avoid needless delays. Any one of these models will definitely prove to you that it pays to standardize on Ajax all the way 'round.

AJAX AUTO PARTS CO.
RACINE, WISCONSIN



THE COVERAGE LINE OF FINEST QUALITY JACKS

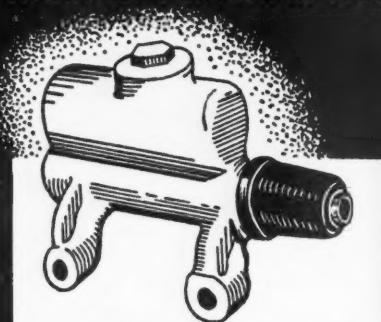
"They Must be Good!"

MERCURY Exchange BRAKE CYLINDERS

are now sold and guaranteed to give

\$100,000.00

INSURED PERFORMANCE



Ask for dependable, guaranteed Mercury Exchange Brake Cylinders for your next replacement job. They're precision-rebuilt to give long, satisfactory service under the most rugged braking conditions.

FOR ALL CARS AND TRUCKS

Rebuilt to Highest Factory Standards

All Mercury Rebuilt Brake Cylinders are scientifically renovated; walls are bored and honed to a micro-accurate Super-Mirror Finish. New rubber parts, springs and valves are used throughout. All are tested for conformity to rigid factory specifications.

Save \$2 to \$3 on Every Cylinder Replacement!

Turn in your "junk" cylinders for generous discount on Mercury Exchange units for bigger brake job profits.

EXCHANGE WITH YOUR LOCAL JOBBER

MERCURY
BRAKE PRODUCTS CO.

1532 W. Fulton St. Chicago 7

The World's Largest Exclusive Rebuilder of Brake Cylinders



Adjusting the Auto-Lite Voltage Regulator

Continued from Page 156

should be .012 in. Too much variation in the gap indicates improper length of the armature stop pin and necessitates replacing the unit.

In adjusting the current regulator, it is best to have a variable resistance to connect into the battery circuit on the "hot" side of the ammeter. If such a resistance is not available, turn on the lights and all accessories to create a heavy load in amperage. If the regulator is operating correctly, the ammeter will give a reading equal to maximum load noted on the nameplate. These readings should be taken with the cover on the regulator. Adjustments are made by varying the spring tension. Bend the lower spring bracket down to increase the current setting and up to decrease the current setting. Gap settings are made in the same way as on the voltage regulator.

Merger Rumors

After a long absence, reports of mergers among independents have bobbed up again. Latest involves Kaiser-Frazer and Willys and was promptly and officially denied. Nonetheless, it is expected that these reports will be heard repeatedly as competition between the independents and the Big Three stiffens.

Continental To Supply Engine For New Low Priced Car

Continental Motors has confirmed a report that it will supply the 64 horsepower engine for a new low priced automobile to be produced by a San Diego, Calif., company. The car will be built by Del Mar Motors, Inc., and is said to be a 5-passenger sedan selling for approximately \$1,200 at the plant. The company says it expects to build 600 cars a month by June.

MOTOR AGE
The Quality Magazine of the Automotive After-Market




MASTER CRAFTSMEN
 have made
Herbrand
 "VAN CHROME"
TOOLS OF QUALITY
 favored by skilled mechanics since 1881

There's nothing finer in good tools for the professional mechanic, or for the man who has a shop at home. Complete line, covered by new catalog 54-M, sold through established distribution channels.

HERBRAND DIVISION
 THE BINGHAM-HERBRAND CORP., Fremont 2, Ohio

(Advertisement)

HUDSON has THE MOST of all the things buyers want most

The amazing and exclusive New Hudson "step-down" design is the key, not to just one or two "features", but to overwhelming advantages in beauty, room, ride, performance and safety obtainable only in this entirely new type of motor car!



The modern design for '49!



40 YEARS OF ENGINEERING LEADERSHIP



HUDSON DESIGN OTHER CARS

Hudson's "step-down" zone (at "A", above left) permits a lower center of gravity for greater safety, improved roadability, smoother ride; provides amazing head room, far more seat room; allows a low, streamlined silhouette—full road clearance.

All other cars have floor on top of frame (see "B", above right) so they fail to utilize vital space between frame members. Result is a higher center of gravity and either a high roof line or insufficient head room. Seats are also narrower.

New Hudson

ONLY CAR WITH THE STEP
DOWN DESIGN

Eight body styles in Super Series and Commodore Custom Series. Ten rich body colors. Two special colors, five two-tone combinations—white sidewall tires—at extra cost.

*Designed Especially for
AUTO & AVIATION
SERVICE Fields . . .*

- ★ Specialized and General-Purpose Cleaning Compounds for Every Requirement
- ★ Liquid Paint Mask & Paint Strippers
- ★ Degreasing Machines & Safety Solvents

Write for full details!

DETREX Corp.
DETROIT 32, MICHIGAN

SINCE 1937

TRUCUT

Meter Type GROWLER

Equipped with light circuit to test for grounds. Meter to indicate open and short circuits. 115 Volt. 60 Cycle A.C. See your Jobber.

FRANK N. WOOD CO.
344 W. Main Street
Waukesha, Wis.

Gear Pullers

GARAGE TOOLS

CARBON SCRAPER CREEPER CASTERS BUSHING REMOVERS REAMERS

Cal-Van
MACHINE PRODUCTS INC.
800 WATER ST. JACKSON MICH. U.S.A.

★ Write for Catalog

CRESCENT
Wirey Joe
AUTOMOTIVE CABLE

Manufactured by
THE CRESCENT COMPANY, Inc.
Pawtucket, Rhode Island

✓ CHECK THE WIRE
ON EVERY JOB

**SALES
BUILDING
FUSE
DISPLAY**

LITTLEFUSE Incorporated
4785 N. RAVENSWOOD AVE.
CHICAGO 40, U.S.A.

See your jobber

FUSES by LITTLEFUSE
for Counter or Wall

Austin Cuts \$1000 from Price of Convertible



Drivers, Dennis Buckley, Charles Goodacre, and Alan Hess (left to right), alongside the Austin A90 "Atlantic" convertible, which they drove

to 63 A.A.A. class D open stock car records on the Indianapolis Speedway in a high-speed endurance run during the week of April 12-19.

A \$1,000 reduction in the price of its Atlantic A90 convertible sports club coupe was announced recently by The Austin Motor Company, Ltd. (England). This model is the same as that which established 63 new Class D open stock car (122 to 183 cu. in. engines) records in a seven-day high speed endurance run on the Indianapolis Speedway ending Tuesday, April 19.

The reduction affects both models of the Atlantic: the hydraulically-operated top unit which formerly sold for \$3,975 and now sells for \$2,975; and the manually-operated top unit which formerly sold for \$3,795 and now sells for \$2,795. Both prices include all Federal taxes paid, delivered in New York.

The \$1,000 price cut follows by 10 days a previous reduction announced by Austin in the cost of their A40 two- and four-door sedans, one-half ton trucks and station wagons.

The 90-hp. Austin Atlantic convertible, as a result of the records established at Indianapolis this month, became the first foreign automobile to hold American stock car records. The car began the endurance run April 12 and by April 19 had covered 11,850 miles at an average speed of 70.54 miles per hour.

Classified Advertisement

IGNITION TESTERS: — coil-condenser, attractive instrument. Regular \$42.50, close-out \$12.95. Moneyback guarantee. Modelectric Products, Asbury Pk., N. J.

For SERVICE For SALES For PROFIT

Bank on Barton Automotive Chemicals. 14 Years of Specialized Leadership. Many State and Local Dealerships Open.

WRITE
BARTON PRODUCTS CO.
2765 ST. MARY'S CT., CHICAGO 47, ILL.

Thomas McKean Collection Requests Additional Material

The Free Library of Philadelphia is desirous of building up a good collection of printed material relative to the history of the automobile. They therefore would welcome any published matter of this type.

It should be sent to Mr. Thomas McKean, Curator of the Thomas McKean Collection, Free Library of Philadelphia, Logan Square, Phila., Pa.

ENGINAIR TIRE PUMP

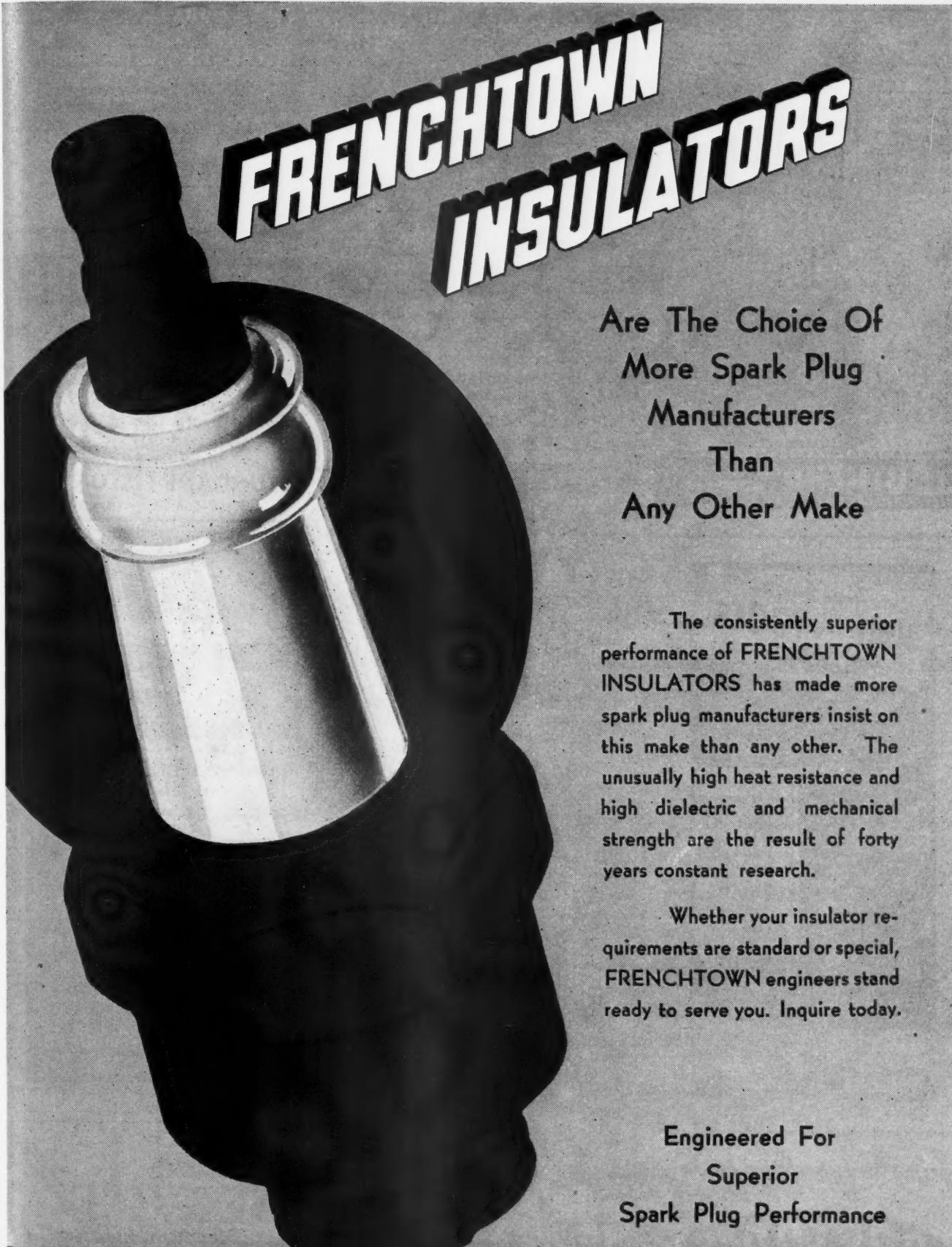
YOUR MOTOR DOES THE WORK!
Guaranteed 2 years, and to pump only cool, clean air. Pumps up to 105 lbs. into tire—90 lbs. quickly.

Over a Million Satisfied Users!
Used by Armies of Six Nations!

Write NOW
FOR "NO RISK"
TRIAL ORDER PLAN!

G.H. MEISER & CO.
327 EAST MARQUETTE RD., CHICAGO 37, ILLINOIS

WITH AIR GAUGE RETAIL \$475



FRENCHTOWN INSULATORS

Are The Choice Of
More Spark Plug
Manufacturers
Than
Any Other Make

The consistently superior performance of FRENCHTOWN INSULATORS has made more spark plug manufacturers insist on this make than any other. The unusually high heat resistance and high dielectric and mechanical strength are the result of forty years constant research.

Whether your insulator requirements are standard or special, FRENCHTOWN engineers stand ready to serve you. Inquire today.

Engineered For
Superior
Spark Plug Performance

FRENCHTOWN PORCELAIN CO.

Sales Office, 8 Muirhead Ave., Trenton, N. J.

Factory, Frenchtown, N. J.

Charlotte Southern Says ...

YES, SIR! IT GETS
FRICTION DUST
AND CHOPPED
ZINC AND BRASS,
TOO. I'M MIXING
IT RIGHT NOW.

FIBER
BLOCK
OUR
NEWEST
BRAKE
LINING



SOUTHERN FRICTION MATERIALS COMPANY
CHARLOTTE, N. C.

Time Savers...
KEN TIRE CHANGING TOOLS
...they're "Job Designed"



See Your Local Jobber for Our Complete Line
The KEN-TOOL Mfg. Co.
Akron 5, Ohio

First for Comfort

BOSTROM

HYDRAULIC
TRUCK SEAT

BOSTROM MFG. CO. MILWAUKEE, WIS.

Auto Production Hits

20 Year High

Despite all talk about the buyer's market, the automobile manufacturers are rapidly approaching a record rate of production. Production in U. S. plants during March was about 520,000 cars and trucks, the highest output for that month since 1929, which was a record year. The feat is even more remarkable considering that Chrysler Corporation, which is a volume producer, was plagued consistently during the month by shutdowns due to a supplier's strike and also by the troubles incident to introducing a new model. Packard also went down late in the month for changeover to the 1950 model which is scheduled for introduction about the first of May. According to AMA the industry during the first three months of this year turned out more passenger cars than in any comparable period since 1941. During the first week in January, production was about 14,000 cars a day but by the first of April it had advanced to more than 18,000 a day, or an increase of nearly 30 per cent, and during the next two or three months substantial gains are scheduled.

THE ANDREWS LINE ...

Your Best Electrical Connection

CUSTOMER SATISFACTION SINCE 1921

Andrews
MANUFACTURING CO.
ST. LOUIS, MO.

ALLOY PISTONS

If they're
HARD TO GET
We've Got 'em!
To Fit Every Car in America

Write for Catalog
TSUNGANI PISTON CO.
625 East 11th St., Tacoma, Wash.



U.S. Pat. No. 2,093,547 — Canadian Pat. No. 223,568
INTERNATIONAL CHAIN & MFG. COMPANY
YORK, PENNSYLVANIA

• GUMOUT CLEANS CARBURETORS •

GUMOUT
tunes
carburetors
Gumout cleans fuel system, keeps it clean! Improves engine performance. Eliminates moisture. Adds power. Use the year around with your gasoline.
PENNSYLVANIA REFINING CO.
2692 Lisbon Road, Cleveland 4, Ohio
Butler, Pa.—Edgewater, N. J.
• GUMOUT CLEANS CARBURETORS •



Genuine
SERVICE
INDIANAPOLIS
"Measurably Better"
SPRINGS

SERVICE SPRING COMPANY
INDIANAPOLIS 6, INDIANA



AUSTIN

A PROFITABLE NAME TO TEAM UP WITH!

What are the facts back of the headline? ...

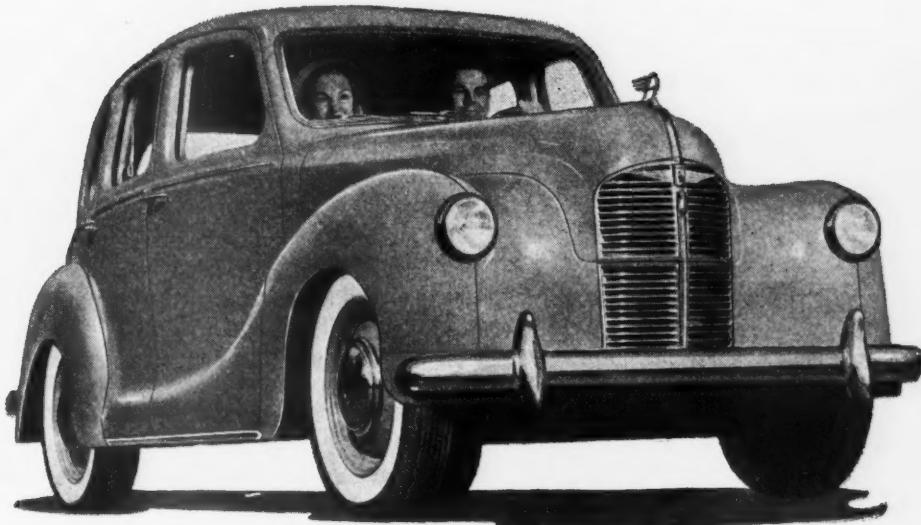
1. Americans are buying more English Austins than all other imported cars combined. The Austin is in the U. S. A. to stay.
2. Austin dealers now are established from coast to coast. There is a two million dollar stock of replacement parts in this country, and all facilities required for expert service.
3. The Austin is a superbly engineered, family-size motor car, Continental in smartness, delivering up to 35 miles per gallon, and packing into its 2,250 pounds more solid, provable car value per dollar than anything on the roads today.

PROSPECTIVE DEALERS: — Austin franchises are still available in important car-buying areas.

There is room in the Austin plan for upward of 100 new Austin dealers in the United States. And there may be a protected franchise available in your territory.

If you seek a profitable new car business — if you have had automotive selling experience — then this is an unusual opportunity for you.

Write or wire us collect, and our representative will arrange to call on you to discuss your application.



THE AUSTIN MOTOR COMPANY, LTD. (ENGLAND)

FRANCHISE DIVISION

250 West 57th Street, New York 19, N. Y.

When in DETROIT

Stop at Hotel Wolverine. Centrally located on Elizabeth Street, a block east of Woodward, overlooking Grand Circus Park. Five hundred rooms, each with tub and shower. Good food. Ample parking space—garage service. Home of THE TROPICS, most unusual night spot in Detroit.

HOTEL WOLVERINE
The Goodwill Hotel
RATES FROM \$2.75 SINGLE • \$5 DOUBLE



CLEAN AND POLISH IN ONE OPERATION



At last! A polish that cleans grime and oxidized material from car finishes and polishes at the same time. Especially compounded for use with power polishers. One gallon polishes 7 to 8 cars! Price only \$2.95 per gallon — \$2.45 in case lots. Ask your jobber or write:

MILWAUKEE ELECTRIC TOOL CORP.
Milwaukee 8, Wisconsin

Exide®

The dependable battery that millions of car owners want.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32
Exide Batteries of Canada, Limited, Toronto
WHEN IT'S AN EXIDE...YOU START

FOR ENGINE BEARINGS
CLUTCH PLATES AND PARTS
CHASSIS PARTS

Monmouth
TRADE MARK
is the name

Auto Prices Reduced

But Market Remains Firm

Biggest news sweeping the automobile industry at the moment is the wave of price cuts touched off by General Motors in late February. Between Feb. 25, when GM made reductions of \$10 to \$40 on passenger cars and up to \$150 on trucks, and April 5, four other companies had announced price reductions and it was only a matter of time until the rest of the industry would follow suit. Willys reduced prices by \$25 to \$270 about the middle of March. A few days later Kaiser-Frazer came through with the largest reduction thus far, ranging from \$198 on the Frazer to \$333 on the Kaiser Special. It is estimated that rebates to dealers on stocks and inventories totaled about \$4.5 million in K-F's case. At the same time the discount structure which had been scheduled for an increase of about 6 per cent was revised and a \$200 trading allowance in effect since Feb. 14 was discontinued. It is understood that the discount on the Kaiser Special will remain unchanged at 19.2 per cent and that on other models it will be increased about 4 per cent.

Ford was the next producer to cut prices with reductions of \$12 to \$30 on Ford, \$80 to \$120 on Mercurys, a flat \$100 on all Lincoln and Lincoln Cosmopolitan models, and \$10 to \$40 on certain truck models. Two days later Nash followed with reductions of \$20 to \$120.

Behind the price cuts lies a story which is not yet completely clear. All companies are insisting that their field stocks in dealers' hands are not burdensome. There is evidence, however, that inventories have been higher than at any time since the end of the war. It also has been evident that new cars have to be sold in practically all cases, with dealers in some lines having to make concessions in the way of trade-ins or other inducements. In other words, the buyer's market has returned. Nonetheless, there is still to be an excellent market for automobiles and most companies are talking about increased schedules for the next three months.

The car manufacturers and dealers, however, will have to increase their sales efforts the same as everyone else.

See your
MANLEY
DISTRIBUTOR
FOR
AUTOMOTIVE
SERVICE
EQUIPMENT

For greater undercoating PROFITS...

LOOK TO...

Write for a Davison Representative or authorized distributor to give you the full story.



THE DAVISON CHEMICAL CORPORATION
Baltimore 3, MD.



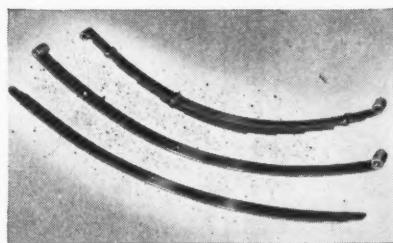
HOW IS YOUR STOCK OF

Rubbermaid KAR-RUGS

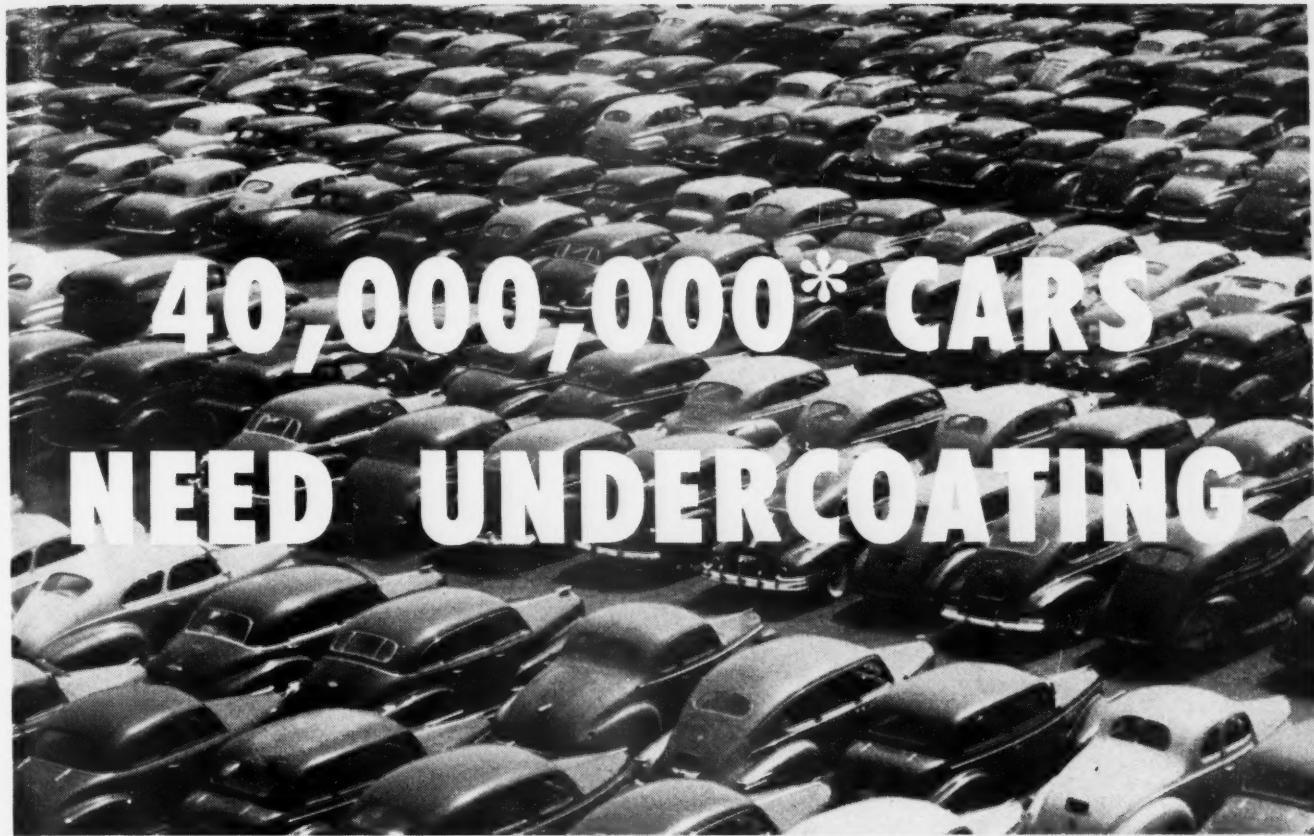
5 Clear, rich colors
4 Engineered Sizes

Check your Jobber Salesmen

THE WOOSTER RUBBER CO.
WOOSTER, OHIO



ELECTRICALLY HEAT TREATED
for Longer Life and Better Service
MOOG INDUSTRIES, INC., ST. LOUIS



40,000,000* CARS NEED UNDERCOATING

**PROTECTS
AGAINST RUST**

**REDUCES
VIBRATION**

**SILENCES
SQUEAKS**

**SEALS OUT
DUST**

**MUFFLES
NOISES**

*Estimated

**NOW...Get in this REAL Profit
Field with superior**

LION Nokorode

Under-Car Sealer and Silencer

Now is the time to start selling underbody coating—for extra profits. An estimated 40 million cars and trucks need underbody coating; so get your share of this tremendous new profit field now.

You'll find the *real* profit field exists for Lion Nokorode, because its quality is uniformly superior . . . entirely produced from raw material to finished product by a single company—Lion—under U. S. Patent No. 2393774.

Yes, it pays to sell an underbody coating you can sell with *confidence*. And Nokorode's controlled quality and uniformity assures ease of application and customer satisfaction.

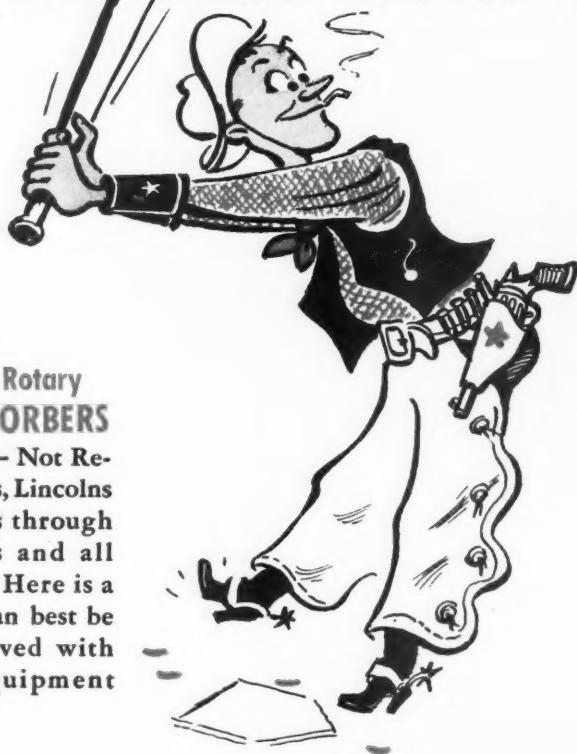
Find out about the *proven* way to *extra* profits with Lion Nokorode. Just call or write for details of Lion's complete, backed-by-advertising plan . . . the plan that can add many extra dollars to your profit picture *fast*.

LION OIL COMPANY

El Dorado, Arkansas



GO TO BAT WITH HOUDAILLE*



1

HOUDAILLE Rotary SHOCK ABSORBERS

(Brand New — Not Re-built) for Fords, Lincolns and Mercurys through 1948 models and all Studebakers. Here is a market that can best be sold and served with original equipment Houdailles.



2

HOUDAILLE Direct-Action SHOCK ABSORBERS

. . . for all cars of the Chrysler Family, Frazers, Kaisers, Hudsons, 1949 Chevrolets, Packards, Nashes, Pontiacs, 1949 Fords, Lincolns and Mercurys and many other makes.



3

HOUDAILLE "Huskies"
a new heavy-duty, direct-action shock absorber for most of the new and many of the older cars. Gives easier riding and longer life under normal conditions and the extra control which is needed by many modern suspensions.



If you haven't yet received your copy
of Houdaille's new complete catalog,
ask your jobber or write.

*
Say
"Hoo-dye"

HOUDAILLE - HERSHY CORPORATION

HOUDIE ENGINEERING DIVISION

BUFFALO 11, NEW YORK

America's Pioneer Builder of Hydraulic Shock Absorbers

MOTORISTS WISE
SIMONIZ
T.M. REG. U.S. PAT. OFF.

GIVES CARS LASTING BEAUTY

**THANKS FOR
INSISTING THAT I
SIMONIZ MY CAR!**

Union Oil Station
8755 West Third Street
Los Angeles, California

By offering a complete SIMONIZ service you, too, can greatly increase your profits! Send now for the FREE operation and promotion manual.



Profit Shine for '49!

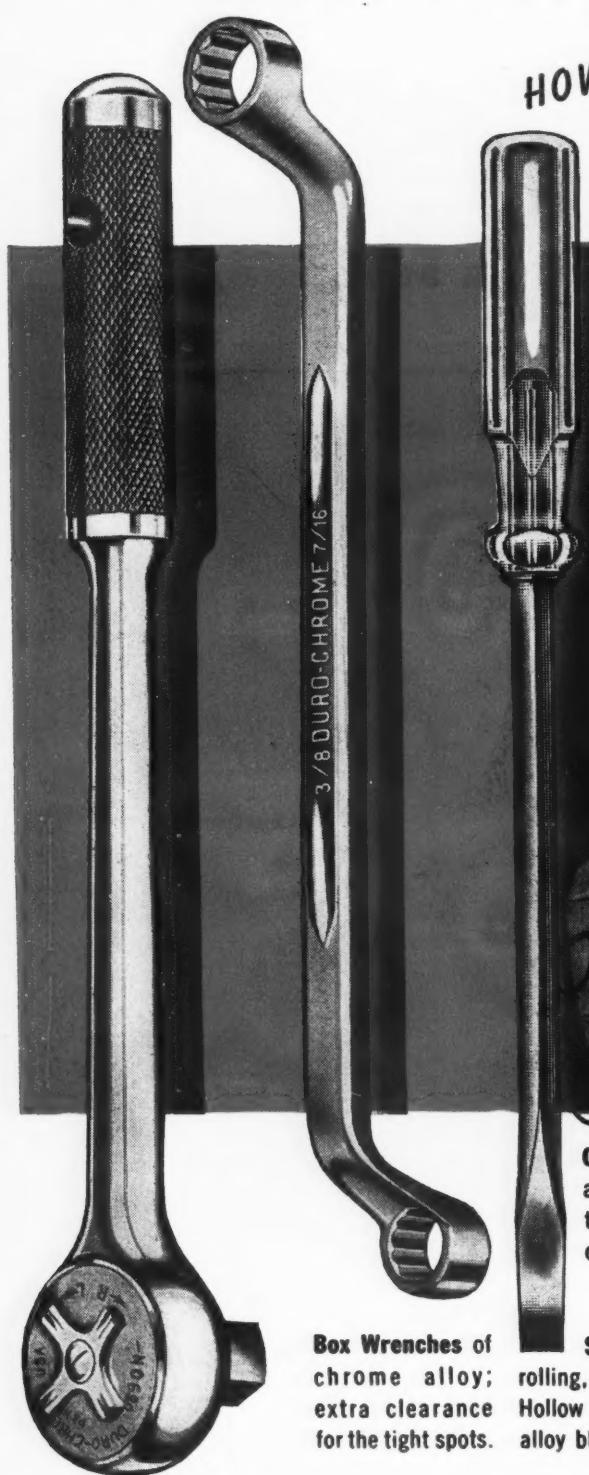
SIMONIZ sales are on the up-swing. The demand is greater than ever . . .

and so are your profit possibilities! Millions of motorists insist on genuine SIMONIZ and Simoniz Kleener—because they know there's nothing else as marvelous for their cars. This overwhelming preference—plus an increased national advertising campaign—assure you of bigger profits—insures you against customer dissatisfaction!

THE SIMONIZ COMPANY, CHICAGO 16, ILLINOIS

DURO-CHROME TOOLS

HOW TO COMPLETE YOUR TOOL OUTFIT
The Easy Way!



Box Wrenches of chrome alloy; extra clearance for the tight spots.

Screw Drivers with non-rolling, square Durolite handles. Hollow ground forged chrome alloy blades.

80-TOOTH ACTION Ratchet Wrenches $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " square drives. They get turning action in 5-degree arc. Reverse at a finger flip.

Complete tool sets. 114-piece set shown has HOT BROACHED Sockets for perfect fit, greater strength. Has sockets $\frac{1}{4}$ " to $1\frac{5}{8}$ " with attachments, popular selection open end and box wrenches, punches, chisels, screw drivers . . . a fine tool for every need!



doggone good tools!

OVER 2 BILLION BUILT SINCE 1916

DURO METAL PRODUCTS CO., 2649 N. Kildare Ave., Chicago 39, Illinois
ALSO MAKERS OF DURO MACHINE TOOLS



SEEN THE NEW

SUPERFINE

Textilene Sunsure®

BALANCED FABRICS?



YOU: Something new again?

US: Yessir! Something new under the Textilene Sunsure label. From the looms of E. W. Twitchell comes a new and finer balanced fibre fabric for automobile seat covers.

YOU: Smooth as satin, I suppose?

US: No sir! But finer yarns and finer weaving with more woof and warp definitely make this a smoother fabric. It's stronger, more flexible. Nothing like it.

YOU: A new feel in fibre?

US: The feel of tightly woven fabrics. But without shock from static electricity. And without the sort of surface that "picks" or "seizes" coats and furs. These finer weaves, like all Textilene Sunsure seat cover materials, resist fading, resist cigarette and match burns.

YOU: And for me?

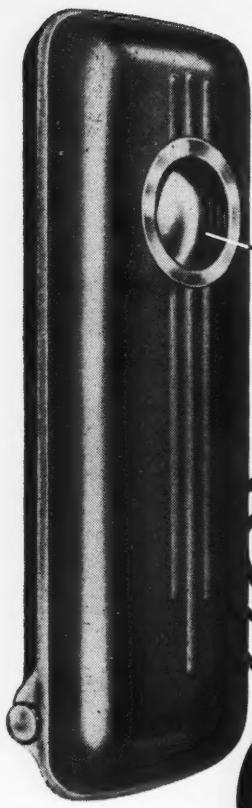
US: These finer weaves come in new colors, stripes, solids, plaids, and herringbones that, we prophesy, will move mountains of seat covers.

YOU: What a prophet!

US: And for you, what a profit! Write for samples today.

E. W. TWITCHELL, Inc.

Third and Somerset Streets
Philadelphia 33, Pa.



You show it - they buy it

Ready Ray TROUBLE LIGHT

21 - c.p.

BULB
With
polished
reflector

NO
INSTALLATION
COST

Just plug in
cigarette
lighter

STEEL
CASE
Holds entire
unit

12½ - FT.
CORD

Reaches any
part of
car

EMERGENCY
SPOTLIGHT

No dry cells
to go dead

BMC

BMC Ready Ray Trouble Light has instant appeal for every auto, truck, jeep, tractor, or boat owner. Plug it in a cigarette lighter socket and a sale is made. All your customers will recognize the value of this auxiliary light. It's no bigger than a flashlight . . . fits in glove compartment. 12½-ft. cord enclosed in case . . . reaches any part of the car. Use as a spotlight when closed or, when open, as a trouble light for changing tires or motor repairs. Attractively packaged; eye-catching colors; with plug for lighter socket or with battery clips. Free dealer helps. Fair traded retail price \$2.75

Write for name of nearest **BMC** Jobber.

Manufacturing Corporation, BINGHAMTON, N. Y.



how to obtain a Salesman for every prospect

A battalion of perfectly-trained salesmen—*working only for you*—visiting regularly the homes of every one of your prospects!

Each salesman telling your sales story as you want him to tell it—completely and correctly—to every prospect!

Utopia? . . . Nope, just well-planned, efficient, direct mail advertising . . . developed and distributed for you by the company handling Direct Mail Advertising for 200 of the world's largest advertisers.

R.L.POLK AND COMPANY, Direct Mail Advertising Division

HEADQUARTERS: POLK BUILDING, 431 HOWARD ST. DETROIT 31, MICHIGAN

BRANCHES AND PRODUCTION PLANTS: New York Chicago Philadelphia Cleveland St. Louis Cincinnati Trenton

wix PACKS A SELLING PUNCH

at the POINT of SALE

The big new WIX proposition hits hard and fast! It catches your customer at the pump-side—and starts him thinking *and buying!* WIX Filter sales, Refill sales and Oil sales are *doubling and tripling*, wherever WIX Engineered Filtration and WIX Engineered Selling go to work!

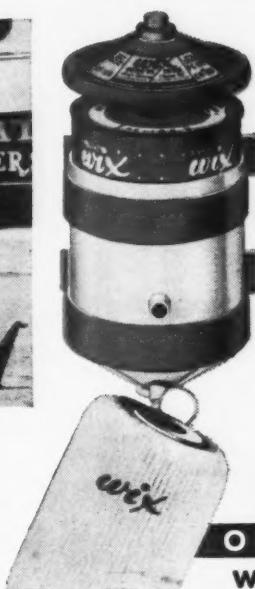
Engineered Filtration combines time-tested, proven principles of motor oil filtration to create products that *perform and sell!* Engineered Selling offers a concrete scheme and practical tools for moving merchandise—quickly and profitably! The dramatic WIX



Director sells by **SHOWING** your customer the true condition of his motor oil, as compared with two clean samples. The roomy, handsome WIX Cabinet Merchandiser helps you sell **FAST** . . . it holds everything you need, right out where the sale is made—pictorial Filter Identification Chart, stock of Filterefils for 90% of all cars, Catalog, Price List and *a dozen cans of oil!*



The WIX Director and Cabinet Merchandiser are on the island to stay—at the John Barbee Esso Service Station, Memphis, Tenn. And small wonder! Mr. Barbee says—"My oil sales increase has been substantial and filter sales have increased about 300% since I changed to WIX."



wix

TRADE MARK REG.

OIL FILTERS • FILTEREFILS

WIX ACCESSORIES CORP'N • GASTONIA, N.C.

CANADIAN FACTORY: WIX ACCESSORIES CORP. LTD., 11 Wabash Ave., Toronto 3, Ont.

MOTOR AGE

The Quality Magazine

(All figures currently revised)

MOTOR AGE is a member of the Audit Bureau of Circulations.

According to their latest statement—

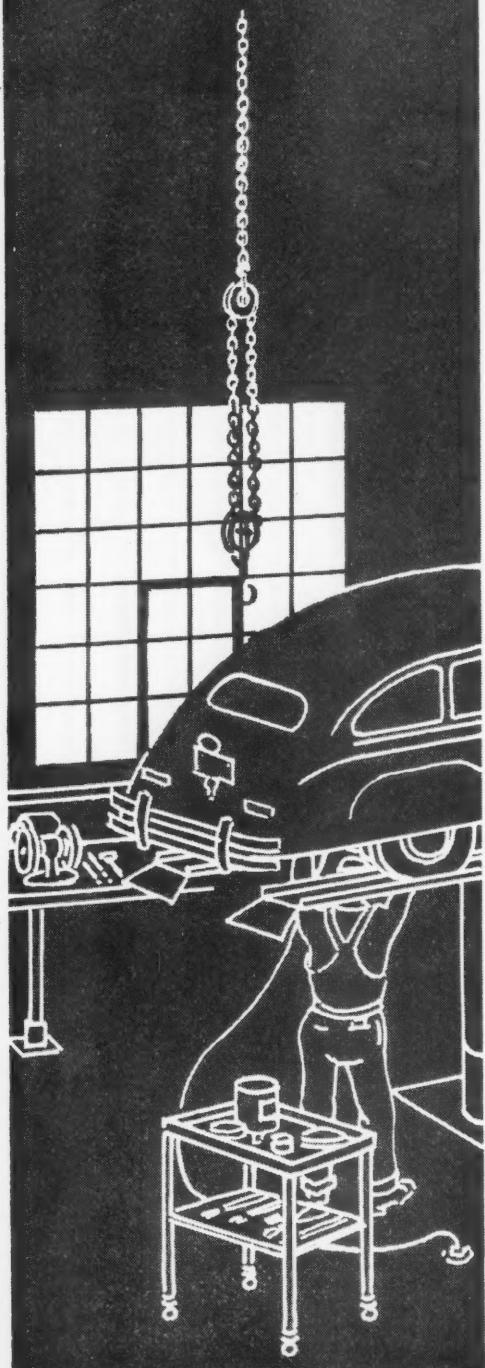
| | |
|--|--------|
| Its total paid circulation is..... | 66,606 |
| Its Circulation among Car and Truck Dealer Establishments is..... | 25,794 |
| Its circulation among independent Maintenance Establishments is..... | 37,258 |
| Its circulation among Automotive Jobbers is | 3,282 |

These facts indicate that 99.31% of its circulation goes to the branches of the automotive after-market in which you are most interested.

Its subscription renewal percentage (73.10%) also is the highest of any monthly automotive magazine—indicative of reader acceptance and interest.

99% of its subscriptions are for one year—indicating that those who buy it are still engaged in the business they were in upon subscribing.

MOTOR AGE has quality circulation and its advertising rates represent real economy.



MOTOR AGE

A CHILTON Publication

Chestnut and 56th Streets,



Philadelphia 39, Pa.

OTHER CHILTON AUTOMOTIVE PUBLICATIONS: AUTOMOTIVE INDUSTRIES

COMMERCIAL CAR JOURNAL

CHILTON Automotive BUYER'S GUIDE

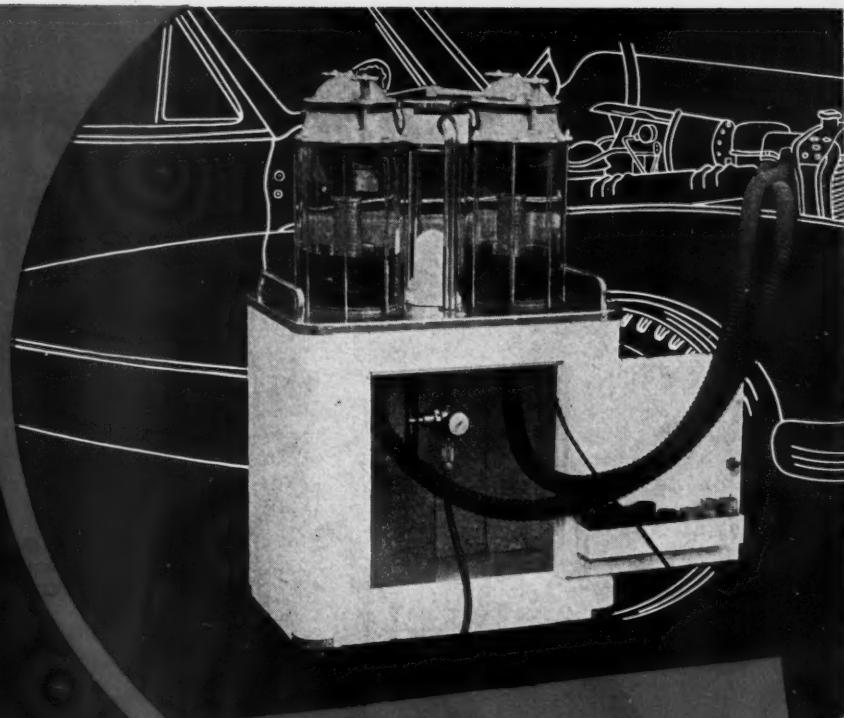
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$

Triple Action Cleaning . . .

1. MECHANICAL AGITATION
2. PRESSURE FILTERING
3. PRE-HEATED CHEMICAL SOLUTION

Cleans Cooling Systems
in less than 30 minutes.

Choldun
PRESSURE
PURGER . . .



DRAMATIC -:- IMPRESSIVE -:- EFFECTIVE
Your Customer can actually see the SCALE,
RUST, GREASE & GRIME as it is PRESSURE-
PURGED from the Radiator and Motor Block!

NATIONALLY
ADVERTISED PRICE

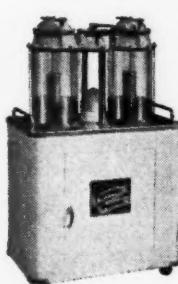
\$295.00

F.O.B. New Haven, Conn.

\$310.00

WEST OF THE
ROCKIES

We Have Car
Manufacturers' Approval



THINGS TO KNOW ABOUT COOLING SYSTEM CLEANING

Q: Does the Pressure-Purger have any motors, pumps, or moving parts which develop service difficulties?

A: NO. There are no moving parts.

Q: Does other equipment have motors, pumps, and moving parts?

A: YES.

Q: Does the car motor have to be running when using the Pressure-Purger?

A: NO. Heating elements in the Pressure-Purger heat solution to necessary temperature.

Q: Does other equipment require the motor to run for a long period of time?

A: YES, and this is harmful to the motor.

Choldun
MANUFACTURING CORP.
New Haven, Conn.

SALES OFFICE: 11 WEST 42 STREET, NEW YORK 18, N. Y.
EXPORT OFFICE: 238 Main Street, Cambridge 42, Mass.



CHOLDUN MANUFACTURING CORP.,
11 West 42 Street, New York 18, N. Y.
Please arrange a Free PRESSURE PURGER Demonstration.

Please send me complete details on the PRESSURE
PURGER and how it will increase Sales.

Firm Name.....

Address.....

City..... State.....

SPRINGFIELD PHILADELPHIA PITTSBURGH ATLANTA DETROIT CHICAGO KANSAS CITY DALLAS DENVER LOS ANGELES TORONTO

More money per job - More jobs per day - with Buick Parts Kits

Buick's new packaged parts program makes it easy for you to do better jobs faster—with more profit!



"PUTTING an old nut back on a new bolt" can be an expensive way to save money these days. And these dozen-odd pieces in the Buick Clutch Equalizer and Link Kit pictured above show just why—

Every one of them, down to the little equalizing washer, comes in for its share of wear every time the clutch is operated. So the entire linkage wears loose—and you won't be able to take the play out of it just by replacing any one part.

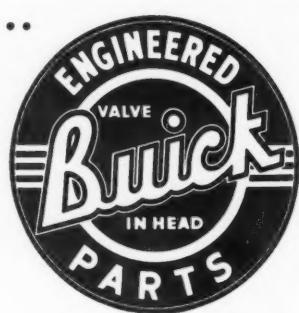
That's why Buick now offers you more than 275 different Parts Kits for the most common repair jobs on Buicks—available at wholesale prices at your nearest Buick dealer's.

It's a timesaving, sensible way to buy all the related parts you'll need for a given job. Each kit is factory-packed in a trademarked Buick container; each part is Buick-engineered to fit right, do its job right.

What are the advantages to you? You'll do better work, you'll save time by having parts that go together with no fiddling around. You'll eliminate the costly nuisance of having to do a job over to keep a customer happy.

In short—you'll make more money out of your Buick repair jobs!

You'll save money—turn out better jobs—
with...



Buy them from your local Buick dealer

Use this WINNING COMBINATION To Increase SHOP and MECHANIC EARNING POWER!



1. SUN TRAINING Brings Your Shop Methods Up-To-Date!

Sun Training by your local Sun Man will bring to you and your organization the newest Sun Diagnosis techniques and selling methods. Your Sun Man will demonstrate new, tested selling methods . . . he will instruct mechanics on modern, time-

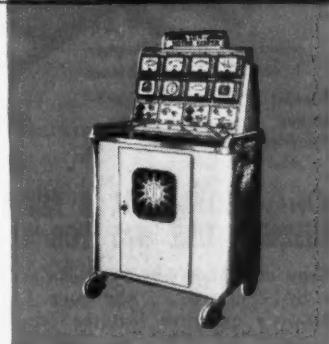
saving Diagnosis techniques! What's more, the Sun Training doesn't cost you a cent . . . it's one of the free services available to all Sun Equipment Owners! Your local Sun Man is one of the more than 400 Sun Representatives from coast-to-coast, ready to serve you on less than 24 hours notice. The Sun Training is a part of a Winning Combination that will pay big dividends . . . schedule yours TODAY!



2. SUN DIAGNOSIS EQUIPMENT Cuts Waste, Gets New Business, Insures Mechanics' Earning Power!

Certainly you believe in Diagnosis Equipment! Everybody does! But don't be satisfied that your Diagnosis department or your methods of using Diagnosis equipment are up-to-date—or that you have enough equipment correctly arranged and utilized! Don't be satisfied until you have talked it over with your Sun Man! He will be glad to show you what many of

the most successful shops in the nation are doing with Sun Equipment. He will be glad to survey your needs and thereby help you increase shop and mechanic earning power. Mail the coupon below for the name of your nearest Sun Representative and a copy of the new "Dollars from Diagnosis" Booklet. *Do it now!*



Sun

ELECTRIC CORPORATION

6353 Avondale Avenue, Chicago 31, Illinois

Please send me, without cost or obligation, a copy of the "Dollars from Diagnosis" Booklet.

Also send me the name of my nearest Sun Man.

Name.....

Company.....

Address..... City..... Zone..... State.....

R-3176 R

using an old-fashioned
parts cleaner?

CLEAN THE MODERN WAY

with



NO BRUSHING
NO SCRAPING
NO HEATING
NO DILUTION

Don't waste your time scrubbing metal parts when you can clean them faster and better with one dip in Bendix* Metalclene. It lifts the grime from the dirtiest parts—large or small—without brushing or wiping. And you save money, for Metalclene keeps its strength. Clean the modern Metalclene way today.

*REG. U.S. PAT. OFF.

BENDIX PRODUCTS DIVISION of
SOUTH BEND 20, INDIANA



Export Sales: Bendix International Division, 72 Fifth Avenue, New York 11, N.Y.

Tow 'em SAFELY . . . with ONE man . . .
without a big investment! Use the hydraulic

TOW-MASTER!

Save money on transporting new vehicles



Lift with one hand!
Store in any auto trunk!

4-point safety grip
serves most cars—no
adapters needed

**Only TOW-MASTER BUILDS
BUSINESS THIS WAY FOR YOU**

Show customers why YOU can make a SAFE tow . . . why your Tow-Master's exclusive features prevent damage and strain to their cars. They'll call YOU when service jobs are on tap. Protect yourself, too, by towing today's high-priced automobiles SAFELY. Four-jaw heavy-duty model, only \$66.75. (Three-jaw \$45.75.) Depend on Tow-Masters!

TOW-MASTER CORP.

Jobbers—Dealers—write for catalog on complete line

Dept. M 1111 N. Clark St. Chicago 10, Ill. Phone: Mohawk 4-3660

ALLEN TUNE-UP EQUIPMENT

ARMATURE LATHE AND UNDERCUTTER

Insure the reputation of your shop with long-life generator overhauls. Turns commutators to mirror-like finish, absolutely true with bearings. Handles armatures up to 7" dia.; 16" max. overall length; 7/16" to 7/8" shaft diameters.



WRITE FOR ILLUSTRATED SPECIFICATIONS

MOTOR ANALYZERS
★ SYNCROGRAPHS
★ GENERATOR and STARTER SERVICE EQUIPMENT
★ FAST CHARGERS

ALLEN ELECTRIC and EQUIPMENT CO.
KALAMAZOO, MICHIGAN

CHECK SPRING TENSION!

A PERFECT valve grinding job can't give efficient engine performance unless all valve springs function properly. Insure every motor overhaul job by checking spring tension with

RIMAC SPRING TESTER For VALVE and CLUTCH SPRINGS

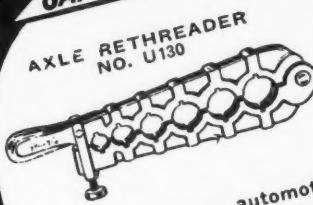
Used in production and recommended for service work by leading manufacturers of automobile, airplane, truck and tractor motors.

RINCK-McILWAINE, INC.
16 Hudson Street, New York 13



Range up to
250 lbs.
PRICE
\$55

National
GARAGE TOOLS "Tough Tools
for Tough Jobs"



AXLE RETREADER
NO. U130

Made of high grade alloy steel forgings, machined accurately and heat treated for long dependable service. Handles the following SAE Thread Sizes: 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4". Cadmium fin-

ish.

SEE your automotive jobber and ask for NATIONAL by name—the name you can trust for "tough tools for tough jobs." If out of stock write or wire

National Machine & Tool Co., Inc.
JACKSON, MICHIGAN, U. S. A.



STREAMLINE
Standard Auto-
mobile Compass.
List Price \$3.95.



STREAMLINE
Marine Compass.
List Price \$2.75.

HULL AUTOMOBILE COMPASSES

Give Your Customers Confidence
on Strange Vacation Roads

One of the things users enjoy most about Hull Automobile Compasses is their confidence on strange roads . . . the constant assurance that they're headed right. Your vacation-bound customers will appreciate the tip. You'll appreciate the added sales and profit in handling the fastest-selling automobile compass in the world.



BEACONSLITE Il-
luminated Auto-
mobile Compass.
List Price \$5.95.

HULL MFG. CO.
P. O. Box 246-MA5, Warren, Ohio.
Send me information and prices on the
Hull Automobile Compasses:

Name
Check: Dealer Chain Store Jobber
Street
City State

MOTOR AGE, May, 1949

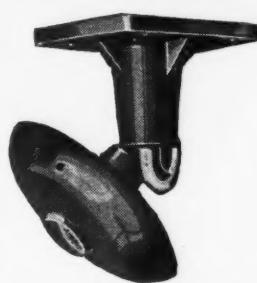
"LITTLE JOE"

The mechanic sits relaxed 12 inches from floor with everything he needs near at hand in the convenient 14"x18" heavy steel tray.



FB 258

The Gi-Gr-Nite Roller can be adapted to thousands of applications where a free-rolling, easy pivoting caster is required, such as Lubricating Equipment, Tool Chest and Tire Racks.



Originators of the famous, free rolling, easy pivoting Geiger-Knight auto creeper

CLINTON PRODUCTS CO.

Clinton, Michigan

NOW!

The **MOST** complete line of Front End Suspension Parts including Ford, Kaiser-Frazer and Studebaker.

Sold thru
Jobbers only
Write for catalog

AUTOMOTIVE MANFG. CO., INC.
General Offices and Warehouse
570 W. FULTON ST. CHICAGO 6, ILL.



AFFILIATED NATIONAL HOTELS

| | |
|------------------------------|---------------|
| ALABAMA | |
| HOTEL ADMIRAL SEMMES..... | Mobile |
| HOTEL THOMAS JEFFERSON..... | Birmingham |
| DISTRICT OF COLUMBIA | |
| HOTEL WASHINGTON..... | Washington |
| FLORIDA | |
| HOTEL CLAYPOOL..... | Indiansapolis |
| LOUISIANA | |
| JUNG HOTEL..... | New Orleans |
| HOTEL DESOTO..... | New Orleans |
| NEBRASKA | |
| HOTEL PAXTON..... | Omaha |
| NEW MEXICO | |
| HOTEL CLOVIS..... | Clovis |
| OKLAHOMA | |
| HOTEL ALDRIDGE..... | Wewoka |
| SOUTH CAROLINA | |
| HOTEL WADE HAMPTON..... | Columbia |
| TEXAS | |
| HOTEL STEPHEN F. AUSTIN..... | Austin |
| HOTEL EDISON..... | Austin |
| HOTEL GREENWOOD..... | Brenham |
| HOTEL TRAVIS..... | Dallas |
| HOTEL CORTEZ..... | El Paso |
| HOTEL TEXAS..... | Fort Worth |
| HOTEL BUCKNER..... | Gainesville |
| HOTEL LEE..... | Gainesville |
| HOTEL JEAN LAFITTE..... | Gainesville |
| CORONADO COURTS..... | Gainesville |
| JACK TAR COURT HOTEL..... | Gainesville |
| HOTEL MONTGOMERY..... | Gainesville |
| HOTEL CAVALIER..... | Laredo |
| HOTEL PLAZA..... | Laredo |
| HOTEL LUBBOCK..... | Lubbock |
| HOTEL FALLS..... | Marlin |
| HOTEL SANTA FE..... | Marlin |
| HOTEL MENGERS..... | San Antonio |
| ANGELES COURTS..... | San Antonio |
| VIRGINIA | |
| HOTEL MOUNTAIN LAKE..... | Mountain Lake |
| HOTEL MONTICELLO..... | Marlinton |

The intense training of today's airline pilots assures your confidence in air travel. Thoroughly schooled in the latest precautionary techniques, the captains of modern aircraft are perfectionists of performance. By specialized training of employees, the Affiliated National Hotels have earned the confidence of their guests. Patrons of these famous hotels register with assurance of superior service, constant courtesy and comfortable accommodations.



AMKO
Quality AUTOMOTIVE REPLACEMENTS

NOW!

The **MOST** complete line of Front End Suspension Parts including Ford, Kaiser-Frazer and Studebaker.

Sold thru
Jobbers only
Write for catalog

FLUSH A BEVY OF GREENBACKS
INTO YOUR CASH REGISTER
DAILY with the superior

Flush-O-Matic
COOLING SYSTEM
SERVICE

Automatic, air pressure controlled. Easily moved about on casters.

Flush-O-Matic compound. Safe, dissolves rust, sludge, scale.

MISTER, here's the service that's **TOPS** in efficiency and economy. Requires only air and water connection. No trouble-some motors to wear out. Takes but 15 minutes of employee time to make cooling systems perform like new.

Enthusiastic dealers everywhere report **FLUSH-O-MATIC** as the simplest to operate, the most efficient, economical cooling system service on the market.

If you operate a car servicing outlet, **FLUSH-O-MATIC** is a perfect profit-making opportunity for you. Don't miss it! Write Dept. B for details and name of closest distributor to-day.

Distributors — a few choice territories open.

INDUSTRIAL RESEARCH CORPORATION
1755 South Central • P. O. Box 908 • Phoenix, Arizona

Index to Advertisers

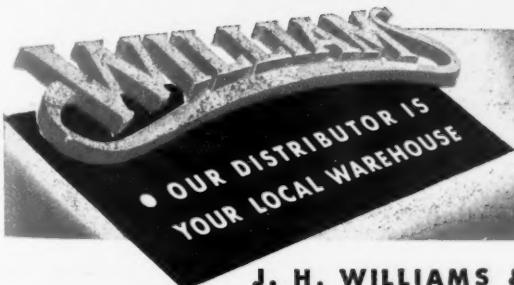
This Advertisers' Index is published as a convenience, and not as part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.

| Index to Advertisers | |
|---|-------------------|
| <p><i>This Advertisers' Index is published as a convenience, and not as part of the advertising contract. Every care will be taken to index correctly. No allowance will be made for errors or failure to insert.</i></p> | |
| AC Spark Plug Div..... | 88-89-129 |
| AP Parts Corporation..... | 28 |
| Affiliated National Hotels | 185 |
| Air Express, Div. Railway Express Agency | 82 |
| Air Reduction Sales Co. | 114 |
| Airtex Automotive Div. | 6 |
| Ajax Auto Parts Co. | 165 |
| Allen Electric & Equipment Co. | 184 |
| Aluminum Co. of America ... | 87 |
| American Chain & Cable Co., Inc. | 172 |
| American Grease Stick Co. | 116 |
| American Hammered Piston Rings | Back Cover |
| Andrews Mfg. Co. | 170 |
| Aro Equipment Corp. | 131 |
| Austin Motor Co., Ltd., The... . | 171 |
| Automotive Mfg. Co., Inc. | 185 |
| BMC Mfg. Corp. | 178 |
| Barton Products Co. | 168 |
| Bendix Aviation Corp. Bendix Products Div. | 184 |
| Black Mfg. Co., The | 150 |
| Blackhawk Mfg. Company | 22-23-32-76 |
| Borg-Warner Corp. | 121 |
| Bostrom Mfg. Co. | 170 |
| Bowes Seal Fast Corp. | 94 |
| Briggs Mfg. Co. | 148 |
| Briggs Shock Absorber Co., The | 162 |
| Brunner Mfg. Co. | 112 |
| Buick Motor Div. | 182 |
| Burd Piston Ring Co. | 90 |
| Cal-Van Machine Products, Inc. | 168 |
| Central Tool Co., The | 110 |
| Champ-Items, Inc. | 146 |
| Champion Spark Plug Company | 14-15 |
| Choldun Mfg. Corp. | 181 |
| Chrysler Corporation | 19-79-85 |
| Chrysler Corp. (Parts Div.) .. | 79 |
| Classified Ads | 168 |
| Cleveland Pneumatic Tool Co. | 130 |
| Clinton Prod. Co. | 185 |
| Commercial Credit Corp. | 164 |
| Commercial Solvents Corp. | 145 |
| Crescent Company, Inc., The. | 168 |
| Davison Chemical Corp., The | 172 |
| Delco Prod. Div. | 93 |
| De Luxe Products Corp. | 172 |
| De Soto Div. Chrysler Corp. | 133 |
| Detrex Corp. | 168 |
| Doan Mfg. Corp. | 132 |
| Dodge Div. Chrysler Corp. | 135 |
| Dorman Products, Inc. | 118 |
| Durkee-Atwood Co. | 139 |
| Duro Metal Products Co. | 176 |
| Electric Auto-Lite Co.... | 12-13-69-95 |
| Electric Storage Battery Co. | 172 |
| Ethyl Corporation | 11 |
| Everhot Products Co. | 150 |
| Federal Identification Co. . | 140-141 |
| Federal-Mogul Service | 73-124 |
| Federated Metals Div. | 148 |
| Fitzgerald Mfg. Company | 147 |
| Ford Motor Company | 97 |
| Foster & Kester Co., Inc. | 122 |
| National Automotive Parts Assn. | 75 |
| National Carbon Co., Inc. | 98-99 |
| National Machine & Tool Co. | 184 |
| Neapeo Products, Inc. | 102 |
| Niehoff & Co., C. E. | 148 |
| P. & D. Mfg. Co., Inc. | 134 |
| Packard Electric Div., General Motors Corp. | 105 |
| Peckat Mfg. Co., Charles | 126-127 |
| Pedrick Piston Rings | 16 |
| Pennsylvania Refining Co. | 170 |
| Perfect Circle Corp. | 71 |
| Perfection Gear Co. | 137 |
| Permatex Co., Inc. | 1 |
| Polk & Co., R. L. | 178 |
| Pontiac Motor Div. | 155 |
| Prest-O-Lite Battery Co., Inc. | 20 |
| Publicker Industries, Inc. | 108-109 |
| Purolator Products, Inc. | 21 |
| Radiator Specialty Co. | |
| Ramsey Corporation ...3rd Cover | |
| Raybestos Div. Raybestos-Manhattan, Inc. | 4 |
| Rinck-McIlwaine, Inc. | 184 |
| Saginaw Steering Gear Div. | 157 |
| Saturday Evening Post | 30-31 |
| Schrader's Son, A. | 158 |
| Sealed Power Corp. | 24-25 |
| Service Spring Co. | 170 |
| Simoniz Company, The | 175 |
| Snap-on Tools Corp. | 91 |
| Socony-Vacuum Oil Co., Inc. | 113 |
| Southern Friction Materials Co. | 170 |
| Springfield Electrical Specialties, Inc. | 100 |
| Standard Motor Products, Inc. | 18 |
| Standard-Thomson Corp. | 188 |
| Sterling Tool Products Co. | 117 |
| Studebaker Corp. | 67 |
| Sun Electric Corp. | 183 |
| Thermoid Company | 80-104 |
| Thompson Prod., Inc. | 83 |
| Timken Roller Bearing Co., The | 7 |
| Tow-Master Corp. | 184 |
| Trainor Natl. Spring Co., The | 144 |
| Trico Products Corporation .. | 17 |
| Trindl Products, Ltd. | |
| Tsungani Piston Co. | 170 |
| Twitchell, Inc., E. W. | 177 |
| U. S. Industrial Chemicals, Inc. | 77 |
| United Motors Service | 119 |
| Van Dorn Electrical Tool Co. | 81 |
| Wagner Electric Corp. | 10 |
| Walker Manufacturing Co. | 26-27-123-152-153 |
| Warwick Laboratories Co. | 136 |
| Wayne Pump Co., The | 161 |
| Weatherhead Co., The | 125 |
| Wells Mfg. Corp. | 138 |
| Wilkening Mfg. Co. | 16 |
| Williams & Co., J. H. | 187 |
| Wiry Joe | 168 |
| Wix Accessories Corp. | 179 |
| Wolf's Head Oil Refining Co. | 5 |
| Wood Co., Frank N. | 168 |
| Wooster Rubber Co., The.... | 172 |
| Zecol, Inc. | 96 |

CHOOSE from this Catalog

Ask for your copy of Catalog A-50, or see the complete Williams Line of Automotive Tools on display panels at your Williams Distributor.

FOR
BIGGER
WRENCH
VALUE
and
BETTER
WRENCH
PERFORMANCE



OPEN END, BOX, ADJUSTABLE AND RATCHET WRENCHES; DETACHABLE SOCKETS AND SETS; IMPACT SOCKETS; TOOL HOLDERS; LATHE DOGS; "C" CLAMPS; CHAIN PIPE TONGS AND VISSES; FLANGE JACKS; PLIERS; SCREWDRIVERS; PUNCHES AND CHISELS; SOFT FACED "NUPLAFLEX" TIPPED HAMMERS; HOIST HOOKS; EYE BOLTS; ROD ENDS; CRANK AND BALANCE HANDLES; THUMB SCREWS AND NUTS.

J. H. WILLIAMS & CO., AUTOMOTIVE DIVISION, BUFFALO 7, N. Y.

WANTED!

By thousands of car, truck and bus owners . . . by commercial and municipal fleet operators . . . these outstanding accessory lights, designed for safety and convenience.

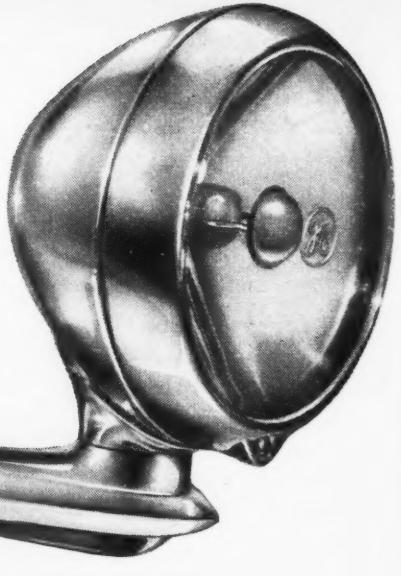


MODEL 15A

5-inch head

MODEL 32A

6-inch head

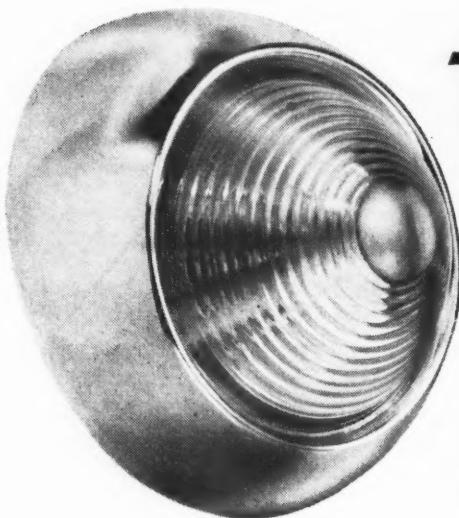


Thomson *Pistol Grip SPOTLIGHT*

Here's a fast-selling profitmaker that offers both beauty and utility. Trim, airstream styling complements the most modern automotive design . . . Precision construction assures long life and trouble-free service. Sealed beam bulb provides glare-free illumination. Natural fitting pistol grip handle controls full 360-degree rotation, easy up and down movement. Built-in, thumb-flip control switch.

An effective point-of-sale aid that will help boost your sales and profits. Available without cost to authorized dealers upon purchase of mounted spotlight and back-up light. Complete installation fittings included with display stand.

FREE DISPLAY STAND



Thomson *Flush-Mounted BACK-UP LIGHT*

Completely new contour design permits flush surface mounting on any car, looks like original new car equipment. Automatic action throws wide beam of light when car is in reverse gear. Spots obstacles, warns pedestrians and motorists. Universal mounting simplifies installation, fits all cars.

MODEL 455

Pair, with one switch.

MODEL 355

Single, with switch.

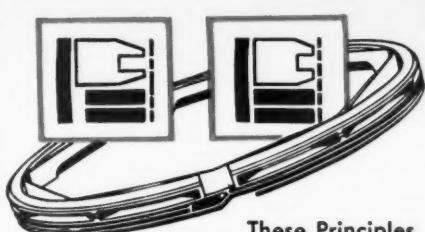
MODEL 055

Single, less switch.

► Complete information available without obligation

STANDARD-THOMSON CORPORATION

Sell Re-Ring Jobs that Customers Will Brag About 2 Years from NOW!



These Principles

IMITATED BUT NEVER DUPLICATED!

RAMCO
Principle Number 1
NO HARSH CYLINDER
WALL PRESSURES

RAMCO
Principle Number 2
USE OF INNER RING
TO STABILIZE PISTON,
NOT FOR PRESSURE

RAMCO
Principle Number 3
INITIAL STEEL CON-
TACT IS INDEPENDENT
OF THE INNER RING!

RAMCO
Principle Number 4
AUTOMATIC ADJUST-
MENT OF RING CON-
TACT TO DEGREE OF
CYLINDER WEAR!

RAMCO
Principle Number 5
ALTERNATING PRES-
SURE ON UP AND
DOWN STROKES!

All these plus many
other Ramco principles
add up to ring perform-
ance that . . .

"Makes More Lasting Friends"



Smooth Engine Performance is an Important Business Booster!

What customer can resist bragging about the smooth way his car throttles down to the slow speed of a parade! That's the kind of ADVERTISING that will really build your ring business! But that isn't the only way you'll profit when you sell RAMCO RE-POWERING! As advertised in **Collier's** and **POST** RAMCO RE-POWERING also sells your carburetion, ignition, and cooling services too. And Ramco backs you up with the Ramco 10,000 Mile Guarantee that keeps ring customers coming to you for all their other automotive service!

FOR RE-BORE OR RE-RING
CAR OR TRUCK

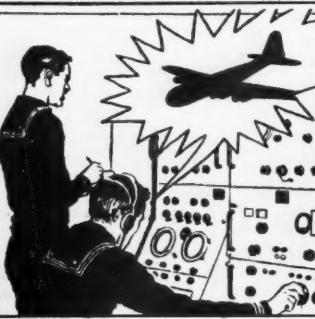
**RE-POWER WITH
RAMCO 10
up
PISTON RINGS**

Built to EXCEED the 10,000 MILE (ONE YEAR) GUARANTEE BY THOUSANDS OF MILES

Other products of Ramsey Corporation, 3718 Forest Park Boulevard, St. Louis 8, Missouri: RAMCO Piston Skirt Stabilizers • • • Seal-Tite Piston Rings • • • Oil-Type Piston Rings • • • Spirolox Retaining Rings, Spiro-Seal Grease Seals & Dust Seals • • • Famous RAMConizer Machine for reshaping collapsed piston skirts • • • Ramco 3-Up Parts Cleaner. Factories: St. Louis and Sullivan, Missouri; Fruitport, Michigan; Toronto 8, Ontario, Canada. Copyright 1949 by Ramsey Corporation. R-3157

Coast Guard Ships and Planes Depend on KOPPERS K-SPUN Piston Rings

U.S. COAST GUARD
TO THE RESCUE!



A PLANE IN DISTRESS! THE ENTIRE AIR-SEA RESCUE NETWORK IS ALERTED—PLANE IS DIRECTED TO THE NEAREST PATROL SHIP.



RESCUE LAUNCHES ARE READIED—THE SHIP SWEEPS A CIRCLE TO REDUCE THE WAVES IN THE LANDING AREA.



COAST GUARD WEATHER SHIPS KEEP A LONG, LONELY VIGIL—RADIO-EQUIPPED BALLOONS REPORT WEATHER CONDITIONS FROM SEA LEVEL TO 50,000 FEET OR MORE.



RADIO BEAMS GUIDE OCEAN NAVIGATORS—CODE LETTERS IDENTIFY SHIP AND EXACT POSITION—AS MANY AS 35 PLANES A DAY "FLY THE BEAM."



TEAMWORK AND SURE-STARTING ENGINES TAKE RESCUE CREWS TO THE "PITCHED" PLANE IN A MATTER OF MINUTES.



18 MONTHS SINCE THE LAST OVERHAUL AND THEY'RE STILL SWEET!
7,300 DIESEL "HORSES" DRIVE THE SHIP THROUGH STORMY SEAS AND POWER HER COMPLEX RADIO EQUIPMENT. THEY GO TWO YEARS BETWEEN MAJOR OVERHAULS, THANKS TO GOOD MAINTENANCE AND KOPPERS K-SPUN PISTON RINGS.



One of a series appearing in
The Saturday Evening Post

Now YOU Can Have K-Spun Rings

Now these same great rings which have set records for long wear and top power performance for the U.S. Coast Guard—and every field of commercial transportation—are available in all sizes for all makes of cars and trucks!

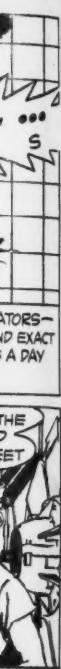
Look at this "Point of Power" chart and see why they are the

choice of those whose engines MUST NOT fail. Then put K-Spun Rings to work for you! You'll do better jobs, have fewer come-backs and make bigger profits by stocking and using Koppers American Hammered Piston Rings. Koppers Company, Inc., Piston Ring Dept., Box 626, Baltimore 3, Md.



American Hammered

KOPPERS PISTON RINGS



ATORS—
ND EXACT
A DAY



THE
23
FEET

E SHIP

R HER

SO TWO

HAULS,

AND

IGS.

ngs

ngines

Spun

I'll do

backs

stock-

American

oppers

Dept.,